

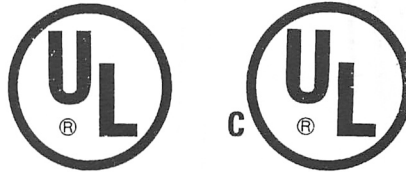


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Radikal BIKERS



TM



DEDICATED GAME OPERATION MANUAL

(for models 33338 and 36238)

Operation & Adjustments • Testing & Problem Diagnosis
Parts Information • Wiring Diagrams

WARNINGS & NOTICES

WARNING

USE OF NON-ATARI PARTS OR CIRCUIT MODIFICATIONS MAY CAUSE SERIOUS INJURY OR EQUIPMENT DAMAGE! USE ONLY ATARI AUTHORIZED PARTS.

* Substitute parts or modifications may void EMC directive or FCC type acceptance.

* For safety and reliability, substitute parts and modifications are not recommended. Use only ATARI authorized components and parts. Failure to do so will void warranty and may result in incorrect and/or unsafe operation.

* This game is protected by federal copyright, trademark and patent laws. Unauthorized modifications may be illegal under federal law. This also applies to ATARI logos, designs, publications and assemblies. Moreover, facsimiles of ATARI equipment (or any feature thereof) may be illegal under federal law, regardless of whether or not such facsimiles are manufactured with ATARI components.

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SECTION ONE

OPERATION

NOTICE

Information in this manual is subject to change without notice. ATARI reserves the right to make improvements in equipment function, design, or components as progress in engineering or manufacturing methods may warrant.

Fill out and mail in the Game Registration card. Be sure to include the game serial number from the label on the rear of the cabinet. For your records, write the game serial number in the manual. SERIAL NUMBER _____

THIS GAME USES A NON-STANDARD EDGE CONNECTOR AND WIRING. REPLACE THE WIRING HARNESS ONLY WITH AUTHORIZED PARTS. USING ANY OTHER PARTS CAN DAMAGE THE CPU ASSEMBLY AND VOID THE WARRANTY!

SAFETY NOTICES

The following safety instructions apply to all game operators and service personnel. There are specific warnings and cautions throughout this manual. Read this page before preparing your game for play.



TRANSPORTING GAME. This game contains glass and fragile electronic devices. Transport this game securely. Avoid rough handling when moving cabinet. Do not move this game with power on.

AC POWER CONNECTION. Verify that the switch on the power supply is set for 110VAC or 220VAC according to local line voltage. Verify that the fluorescent lamp assembly is correct for local line voltage.

PROPERLY GROUND THE GAME. To avoid electrical shocks, do not plug in the game until it has been inspected and properly grounded. This game should only be plugged into a fixed-location grounded 3-wire outlet. Do not use a "cheater" plug or cut off the ground pin on the line cord.

POTENTIAL SHOCK HAZARD. This video game system does not utilize an isolation transformer. There is no isolation between the internal cabinet AC system and the external AC line.

DISCONNECT POWER DURING REPAIRS. To avoid electrical shock, turn off the power switch and disconnect the game from the AC power source before removing or repairing any part of the game. After servicing any parts of the unit, be sure that all of the ground wires are secure before restoring power.

PROPERLY ATTACH ALL CONNECTORS. Be sure that the connectors on each printed circuit board (PCB) are properly connected. If they do not slip on easily, do not force them. A reversed connector may damage your game and void the warranty. Connectors are keyed to fit specific pins on each board.

USE PROPER FUSE. To avoid electrical shock, all replacement fuses must match the type, voltage rating, and current rating of the original fuse.

HANDLE FLUORESCENT TUBE AND CRT WITH CARE. If you drop a fluorescent tube or CRT and it breaks, it will implode! Shattered glass can fly eight feet or more from the implosion.

EPILEPSY WARNING

A very small portion of the population has a condition which may cause them to experience epileptic seizures or have momentary loss of consciousness when viewing certain kinds of flashing lights or patterns that are present in our daily environment. These persons may experience seizures while watching some kinds of television pictures or playing certain video games. People who have not had any previous seizures may nonetheless have an undetected epileptic condition.

If you or anyone in your family has experienced symptoms linked to an epileptic condition (e.g., seizures or loss of awareness), immediately consult your physician before using any video games.

Parents should observe their children while they play video games. If you or your child experience the following symptoms: dizziness, altered vision, eye or muscle twitching, involuntary movements, loss of awareness, disorientation, or convulsions, **DISCONTINUE USE IMMEDIATELY** and consult your physician.

PRODUCT SPECIFICATIONS

Operating Requirements

<u>Location</u>	<u>Electrical Power</u>	<u>Temperature</u>	<u>Humidity</u>
Domestic	120VAC @ 60Hz 4.0 Amps	32°F to 100°F	Not to exceed 95% relative
Foreign	230VAC @ 50Hz 2.0 Amps	(0°C to 38°C)	
Japan	100VAC @ 50Hz 4.0 Amps		

Cabinet Statistics

<u>Shipping Dimensions</u>	<u>Shipping Weight</u>	<u>Design Type</u>
Width 32.0" (81.3 cm) Depth 66.5" (169 cm) Height 76.0" (193 cm)	318 lbs. (140 kg.)	Single Dedicated Video Game with Linking capability

Equipment Characteristics

<u>Video Display Monitor</u>	<u>Audio System</u>	<u>Currency Acceptors</u>
Standard Resolution RGB 25" (68.6 cm) CRT	2 Channel Audio 2 Full Range Speakers	Standard Coin Door 2 Coin Mechanisms 1 Coin Counter

Game Characteristics

<u>Player Variables</u>	<u>Operator Variables</u>	<u>Diagnostics</u>
1 or 2 players (with Linking) Choice of vehicle, track Fastest Track Time Recognition	Coinage, Play Mode, Difficulty, Volume, Audits, Statistics	Automatic Power-Up Test Manual Menu System

PRODUCT CONFIGURATION

◆ Stand Alone Units

Each game is ready to play right out of the box. Operators may use the menu screens in the game menu system to determine some player variables in advance or leave the choices up to the players.

◆ Linked Units

Two units can be connected to allow players to compete against each other simultaneously. There is a linking cable supplied with each game.

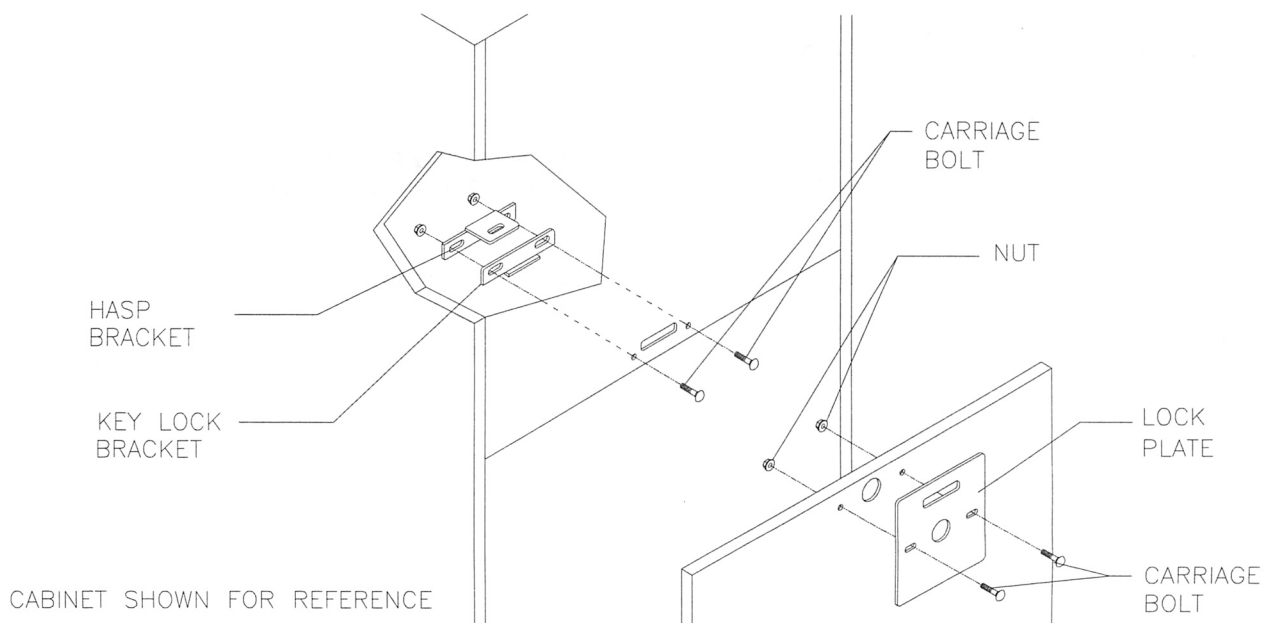
INSTALLATION AND INSPECTION

1. Remove all items from shipping containers and set aside. Inspect the exterior of the cabinet for any signs of damage.
2. Remove the keys from the steering mechanism. Unlock and open the coin and cash box doors. There are electrical cords and spare parts in the cash box.
3. Install one nut onto each leg leveler. Tilt the cabinet as needed to locate four threaded holes under the cabinet. Install a leveler and nut into each hole. Do not tighten nuts at this time.



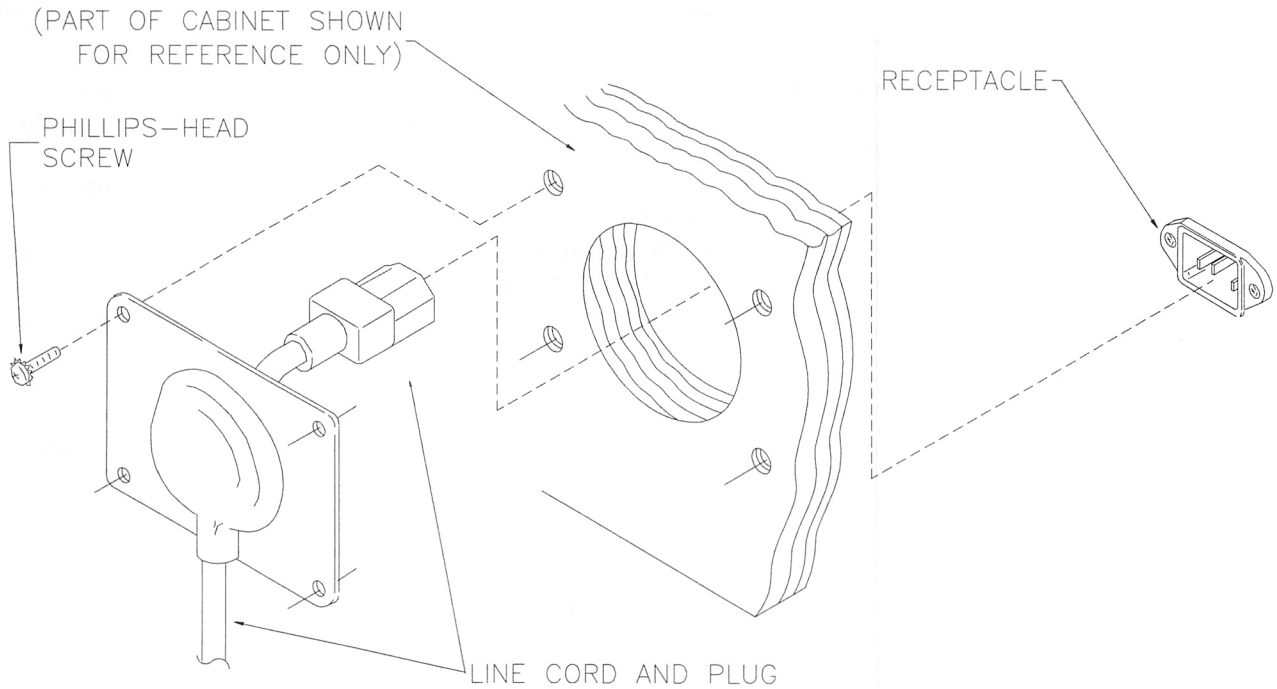
WARNING
The cabinet is top heavy.

4. Stand cabinet upright and make certain it is in a stable position. Move the game to its intended location and level the cabinet. This game is intended for use only in a fixed position. Distribute weight equally on each corner and tighten the leveler nuts.
5. Remove the rear door of cabinet. Inspect cabinet interior for any signs of damage. Check all major assemblies to assure that they are mounted securely. Ensure that nothing blocks fan airflow.
6. An extra padlock may be installed to secure the rear door. A hasp is located in the spare parts bag. Remove the two lock bracket nuts from inside the cabinet, above the rear door opening. Slide the hasp onto the bolts so that it protrudes from the hole in back of the cabinet, then reinstall the nuts.
7. Modify the lock plate at the top of the rear door. Remove the bolts and nuts from the lock plate, then rotate the plate so that the slot will be above the door. Reinstall the bolts and nuts and tighten firmly.



HASP BRACKET AND LOCK PLATE ASSEMBLY INSTALLATION

- The power cord is with the spare parts. Remove and save four screws from the line cord cover plate at the rear of the cabinet. Match the holes on the IEC plug with the prongs in the receptacle and push firmly to seat the line cord. Hold the cord flat against the cabinet and reinstall the cover plate (the indentation should point down so that the cord exits toward the bottom of the cabinet).



LINE CORD INSTALLATION

- Refer to the game's Cabinet Wiring Diagram (Section Three of this manual) and check to see that all cable connectors are correctly secured. Inspect for damaged connectors. Be sure **NOT TO FORCE CONNECTORS** and avoid making reversed connections.
- Plug the game into a grounded (3-terminal) AC wall outlet. Switch **ON** the game using the **ON/OFF** switch located on the upper left top of the cabinet (when viewed from the player's position). The game will power up and begin self-diagnostics. If no errors are found, the game will automatically enter its "attract" mode of operation.

MAINTENANCE

◆ Viewing Glass

Use the T27 wrench to remove the ten tamper-resistant screws on the control panel cover. Pull the control panel upward to expose the retaining strip. Remove the three screws holding the viewing glass retaining strip in place. Slide the glass upward slightly and swing it outward until it is free from the cabinet. Move the glass downward until it is free from the marquee.

◆ Cabinet

Use plastic-safe non-abrasive cleaners to avoid damage. Apply cleaner to a clean cloth or sponge, then use this to wipe the decals or cabinet. *Do not apply cleaner directly on artwork or cabinet!*

◆ Controls

Use plastic-safe non-abrasive cleaners to avoid damaging the parts. Apply cleaner to a clean cloth or sponge, then use it to wipe the controls clean. *Do not apply cleaner directly to the controls or cabinet!*

SERVICE

Only qualified service personnel should perform maintenance and repairs. The product guidelines apply to all game operators and service personnel. Specific notes, cautions, and warnings will be found throughout this manual where they apply. Read the SAFETY pages thoroughly before beginning service.

This game uses complex electronic components that are very SENSITIVE to static electricity. Observe and follow these precautions prior to handling the game electronics:

1. Ensure that the A.C. power to the game is turned OFF prior to servicing the electronics.
2. Discharge any static electricity build up in your body by touching the metal power supply chassis. Do this BEFORE touching or handling the electronic assemblies.
3. Store the electronic assemblies in an anti-static area. Use anti-static bags to store or transport the hard disk drive, the CPU Board Assembly, and all other electronics.
4. DO NOT remove or connect any electronic assemblies when the cabinet power is ON. This will damage the electronic assemblies and void the warranty.
5. Always replace ground wires, shields, covers, etc., after completing maintenance or service.

◆ **Marquee**

Remove the ten tamper-resistant screws holding the speaker grille to the marquee. Remove five hex-head wood screws holding the marquee-retaining strip to the cabinet top. Hold the glass in place to avoid breakage. Remove the retaining strip and set it aside. Lift the marquee glass out of the top grooves and set in a safe place. Do not over tighten screws during re-installation.



The marquee glass could fall out of the cabinet and break when the retaining strip is removed.

◆ **Fluorescent Lamp or Starter**

Remove the marquee retaining strip, glass and artwork. Remove the fluorescent lamp locks. Grasp the tube, give it a quarter turn and pull it from its socket. The starter also requires a quarter turn for removal or installation. Carefully place a new tube into the socket and rotate it a quarter turn to reinstall. Clean the tube to remove fingerprints and dust.



If a fluorescent tube drops and breaks, it will implode and shatter glass! Use care in handling.

◆ **Fluorescent Light Assembly**

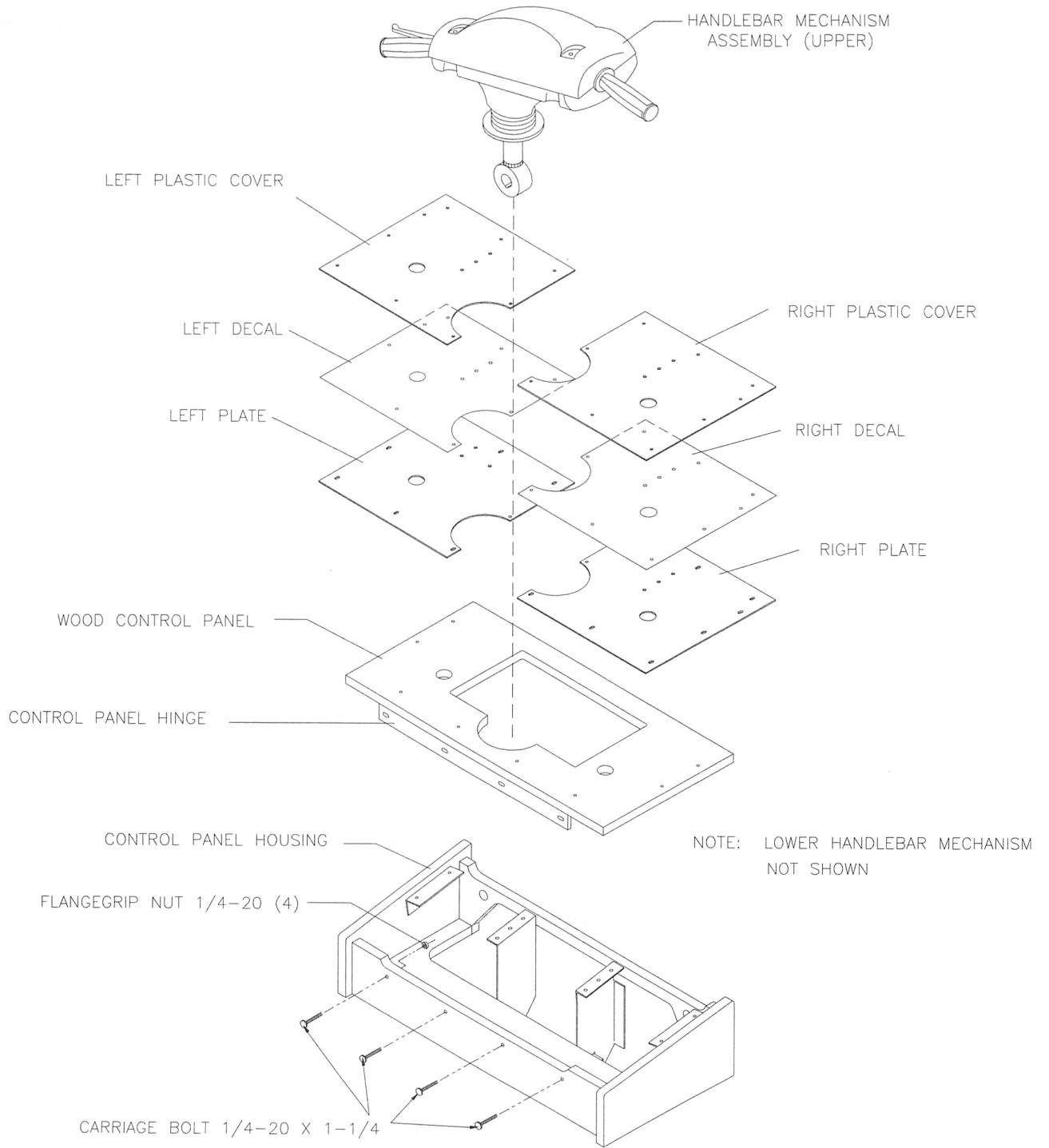
Remove the speaker grille, marquee retaining strip, glass, and artwork. Disconnect the power cable from the fluorescent light assembly. Loosen but do not remove the screws fastening the assembly to the cabinet. Slide the assembly slightly forward to disengage the keyholes. Lift out the assembly.

◆ **Control Panel**

Use the T25 wrench to remove the four tamper-resistant screws at the control panel sides and six tamper-resistant screws at either side of the handlebar protector. Pull the control panel upward to expose the steering mechanism assembly, control buttons, and wiring harnesses. Before reinstalling the control panel, ensure that harnesses and ground strap are reconnected.

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CONTROL PANEL ASSEMBLY

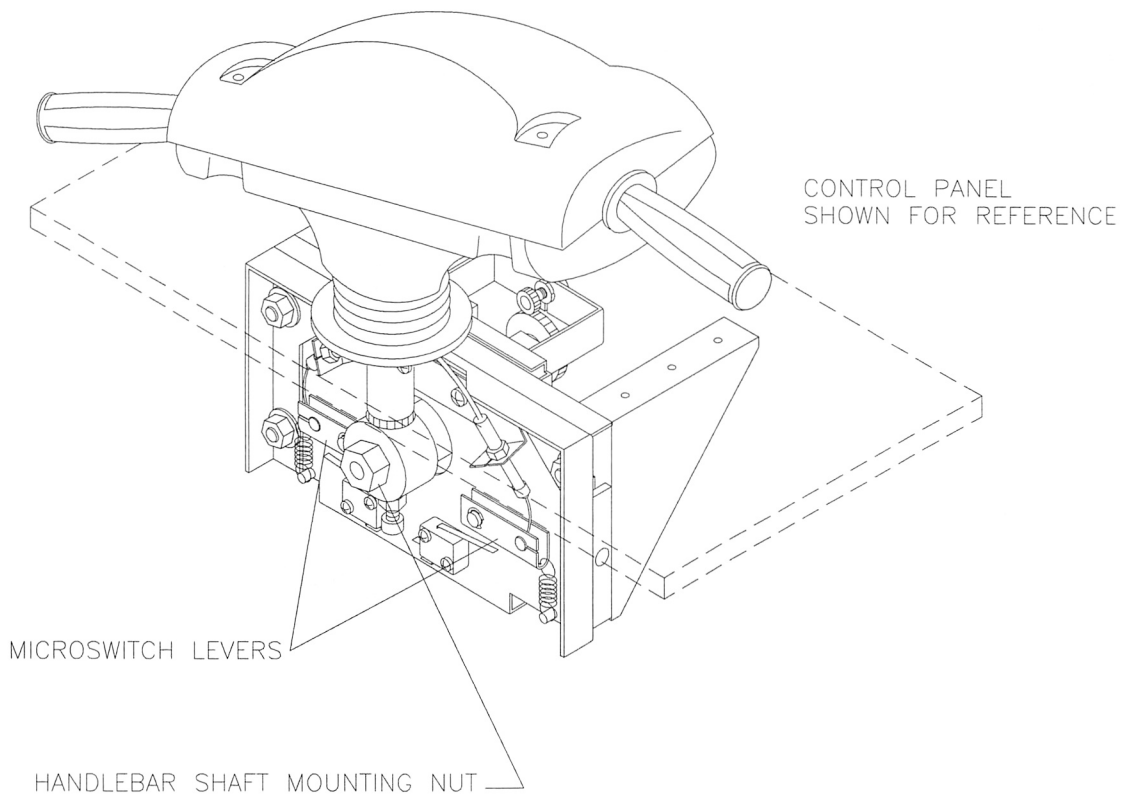


◆ **Handlebar Mechanism**

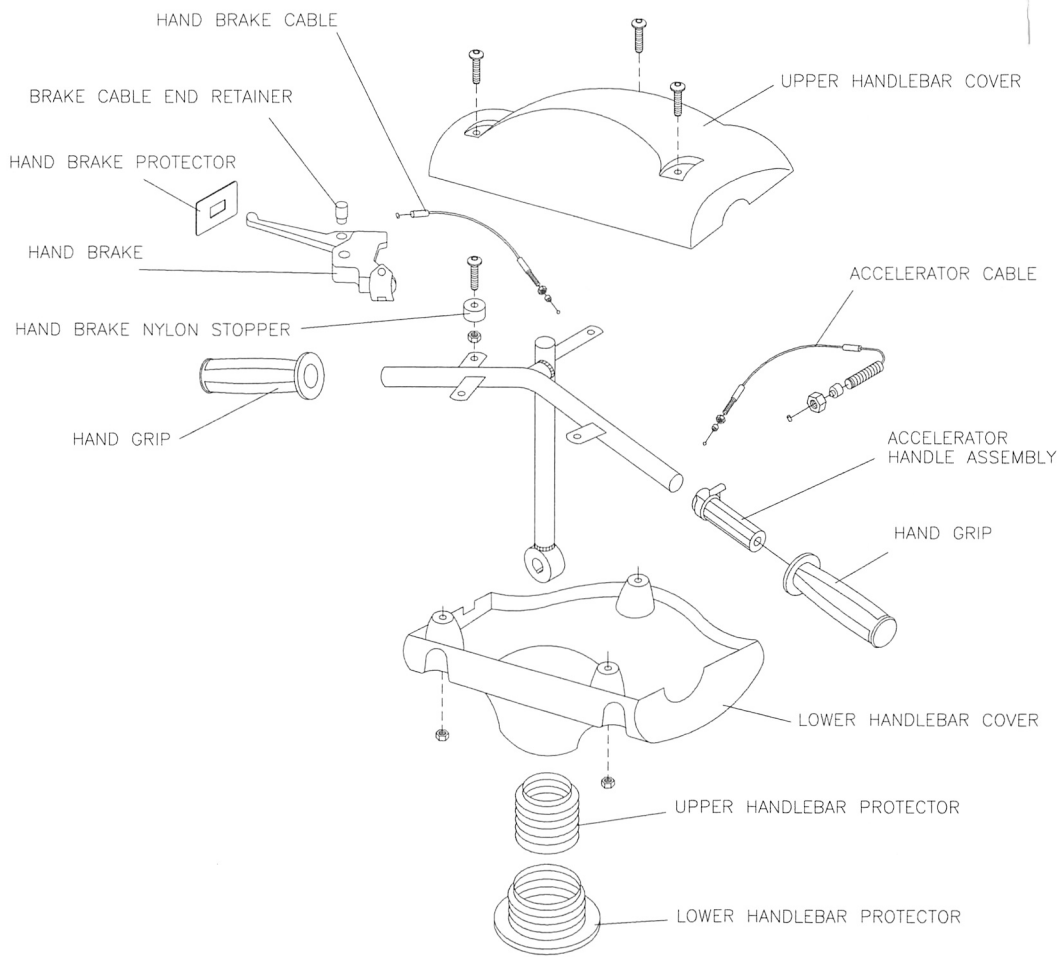
Use the T25 wrench to remove all of the tamper-resistant control panel mounting screws except the six screws at the center holding the metal control panel plates to the mounting brackets. Pull the control panel upward enough to expose and the control wires. Label and disconnect the wires.

Support the mechanism and remove the remaining six mounting screws to free the mechanism from the control panel plates. Hold the mechanism and slide the plates to the side while lifting the mechanism from the control panel. Place the mechanism on a workbench or other suitable surface for repair.

While the steering mechanism is exposed, inspect the gears, switches, and cables. Install a new hardware if the existing parts show signs of wear. Remember to calibrate after installation.

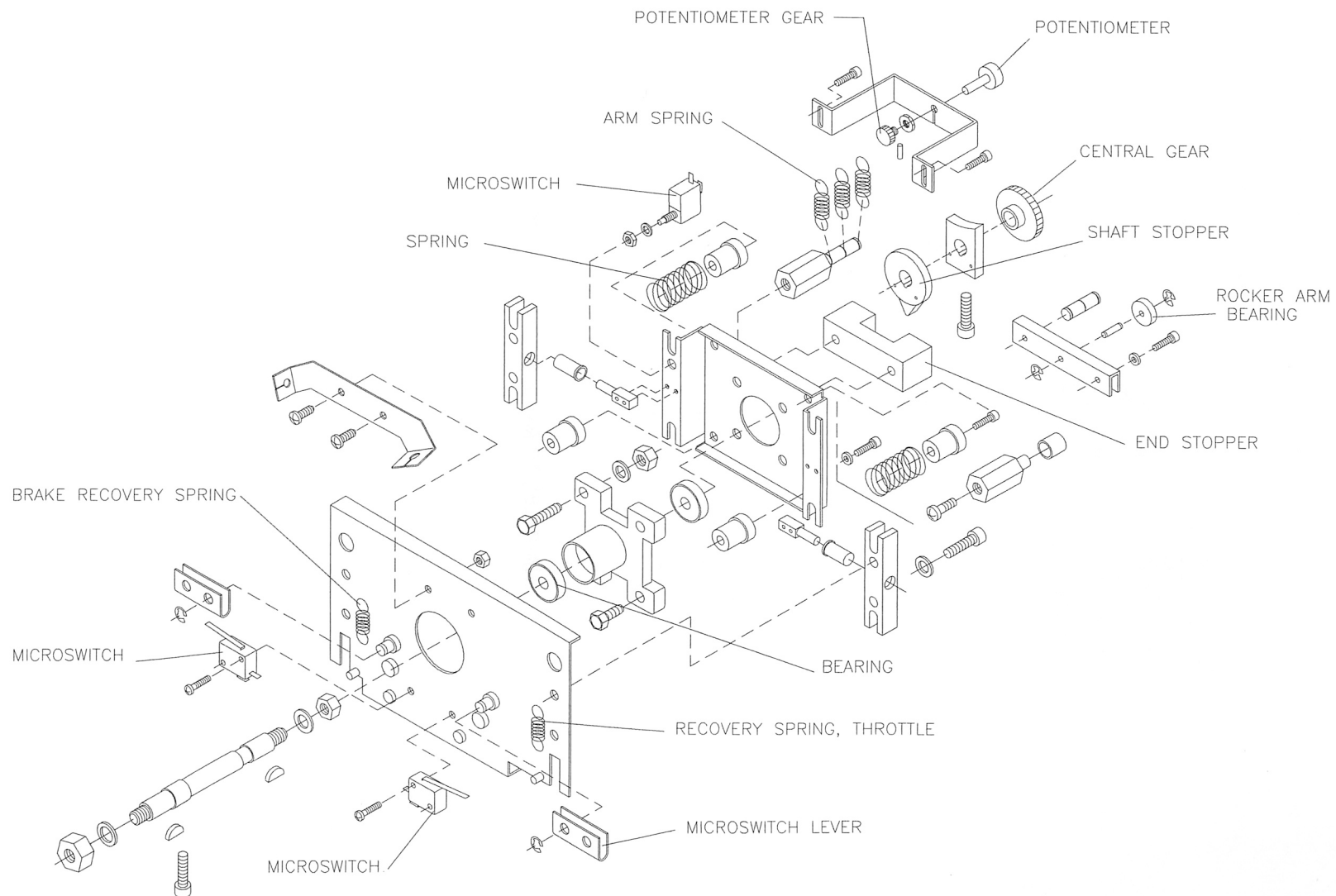


HANDLEBAR MECHANISM – ORIENTATION



HANDLEBAR MECHANISM – UPPER

HANDLEBAR MECHANISM - LOWER



◆ **Brake Cable**

Remove the three T-20 tamper-resistant screws from the handlebar mechanism cover. Lift the cover off the steering mechanism and set it aside. Open the control panel. Separate the lower end of the cable from the microswitch lever. Remove the microswitch lever retaining clip and pull the lever from its post. Rotate the lever to remove the barrel end of the cable. Disconnect the ball end of the cable at the handle by pressing the underside of the cable retainer until the cable is loose. Pull the cable from the handle by the sheath.

◆ **Accelerator Cable**

Remove the three T-20 tamper-resistant screws from the steering mechanism cover. Lift the cover off the steering mechanism and set it aside. Open the control panel. Separate the lower end of the cable from the microswitch lever. Remove the microswitch lever retaining clip and pull the lever from its post. Rotate the lever to remove the barrel end of the cable. Use an allen wrench to loosen the cover of the accelerator cable retainer. Remove the barrel end of the cable from the accelerator grip.

◆ **Handlebar Covers and Protectors**

Open the control panel cover. Disconnect the accelerator and brake cables at the microswitch levers only. Remove the nut at the handlebar shaft and the allen bolt holding the shaft to the handlebar. Remove the handlebar off its shaft and lift it out of the control panel. The lower handlebar housing and protectors are now free to remove.

◆ **Accelerator Grip**

Remove the upper handlebar cover. Remove the accelerator grip by carefully prying it from the accelerator handle and pulling it away. Disconnect the accelerator cable by loosening the screw holding the accelerator to the handlebar to expose the cable stop. Disconnect the cable from the accelerator handle and pull the handle to remove it from the handlebar.

◆ **Brake Handle and Grip**

Remove the upper handlebar cover. Remove the handlebar grip by carefully prying it from the handlebar while pulling it away. Disconnect the ball end of the cable at the handle by pressing the underside of the cable retainer until the cable is loose. Pull the cable from the handle by the sheath. Remove the handle from the handlebar by loosening the allen bolt on the clip and sliding the handle from the handlebar.

◆ **Accelerator/Brake Switches**

Open the control panel cover. Disconnect and label the switch wires. Use a flat-blade screwdriver to remove the switch mounting screws. Replace switches only with ones of the same ratings.

◆ **View/Start Buttons and Switches**

Use the T25 wrench to remove the ten tamper-resistant mounting screws from the control panel. Pull the panel upward enough to expose the switches. Label and disconnect wires. Gently bend the large prong of the holder just enough to slide the switch off the pushbutton holder. Unscrew the nut from the pushbutton housing and remove it from the control panel cover.

◆ **Coin Meter**

Switch off power to the game. Unlock the cash door and swing it open. Remove the cash tubs. The meter is located on a plate at the vault bottom. Remove the screws and lift the plate just enough to disconnect the meter wires from the harness. Record the meter count before testing or replacement.

◆ **Coin Mechanism**

Switch off power to the game. Unlock the coin door and swing it open. Unlatch and remove each coin mechanism separately to clean or replace with a different type. Ensure that the mechanism seats fully in the holder upon reinstallation. Close and lock the release latch, then close the door. Turn on the game and change the mechanism setup, then test known good and bad coins to verify operation.

◆ **Bill Validator**

The game's wiring harness as manufactured does not support a separate bill validator connection, although the coin door will accept such a mechanism. It may be possible to rework the wiring harness to install a bill validator, but this has not been tested.

◆ **Monitor Bezel**

Remove the dashboard and viewing glass. Grasp the monitor bezel at the bottom and lift it out of the groove. Remove the bezel from the cabinet.

◆ **Monitor**

Read these precautions thoroughly before beginning this procedure.



CAUTION

THE VIDEO MONITOR IS HEAVY, WITH MOST OF THE WEIGHT TOWARD THE FRONT OF THE ASSEMBLY. BE SURE IT IS FIRMLY SUPPORTED AS IT IS REMOVED FROM THE CABINET.

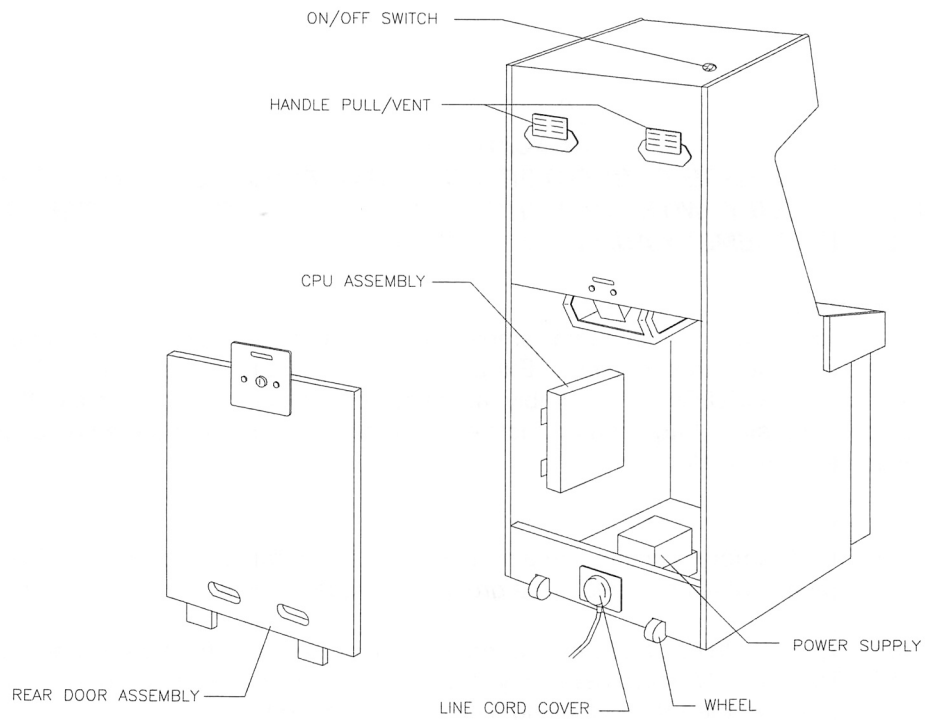
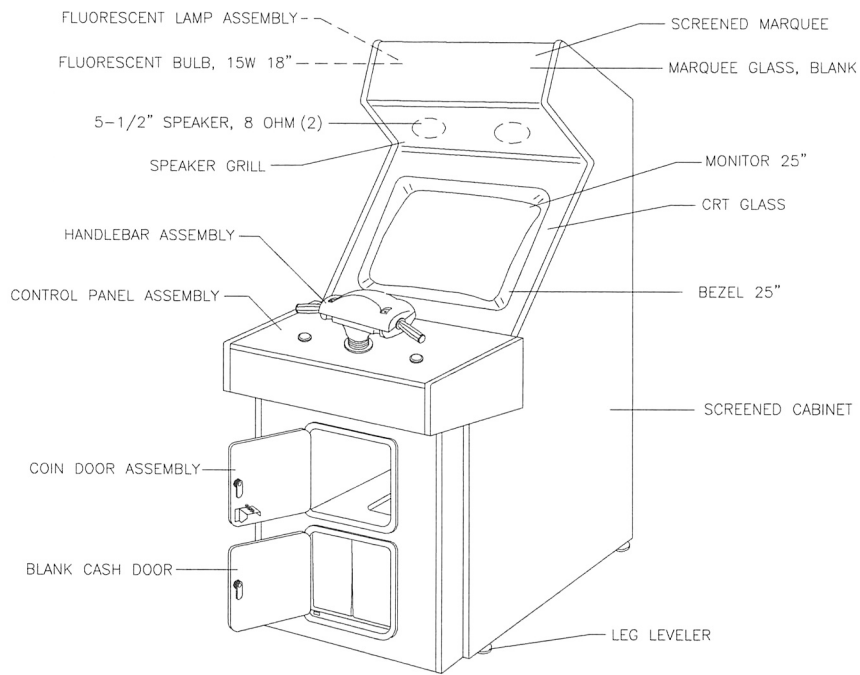
The monitor does not require isolation from the A.C. line voltage in normal operation. However, when operating outside the cabinet or servicing the monitor on a test bench, YOU MUST ISOLATE THE MONITOR FROM LINE VOLTAGE WITH AN ISOLATION TRANSFORMER.

◆ **Speakers**

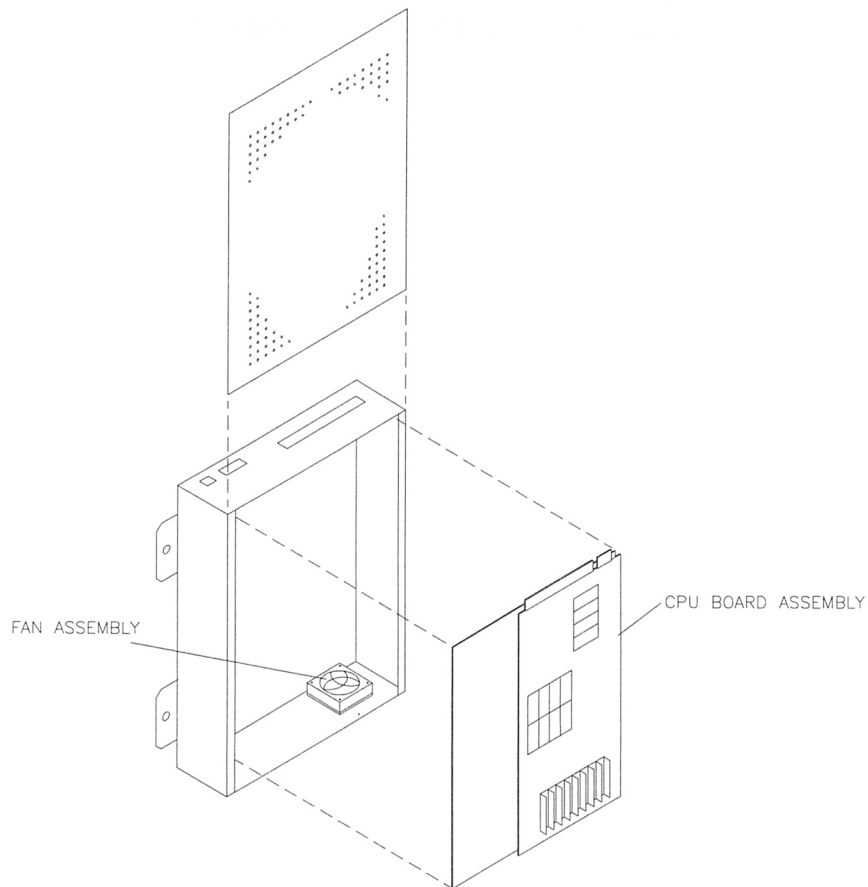
NOTE: The speakers are magnetically shielded to prevent video monitor color impurity. Be sure that any replacement speakers are also magnetically shielded.

Two 5.25" full range speakers are under the marquee. Remove the marquee, glass, and artwork. Remove the speaker grille. The speakers come out from the outside of the cabinet. Be sure to disconnect the cabling and remove the nuts on the mounting screws before attempting to remove the speakers from the enclosure. Carefully reseal the seals upon completing any task in the speaker enclosure. Refer to the Cabinet Wiring Diagram for correct speaker polarity.

CABINET ASSEMBLY DIAGRAM



GAME ELECTRONICS COMPONENTS



CAUTION

THIS GAME USES AN EDGE CONNECTOR WITH NON-STANDARD WIRING. REPLACE THE WIRING HARNESS ONLY WITH AUTHORIZED PARTS. USING ANY OTHER PARTS CAN DAMAGE THE CPU ASSEMBLY AND VOID THE WARRANTY!

◆ CPU Board Assembly

Switch off power to the game. Unlock and remove the rear door. Carefully note the orientation of the EDGE connector and the other cables. Extract the harness and other cables from the board connectors. Remove the CPU Board Assembly mounting screws. Lift the board out of the cabinet and set in a safe place. Anti-static bags and protective containers from new parts may be used for storage if not to be reinstalled immediately.

◆ Memory Replacement

The ROM (Read Only Memory) circuits contain the computer operating instructions. *Memory devices are especially sensitive to static charges. Use grounding precautions when handling these parts.*

Switch off power to the game. Unlock and remove the rear door. Remove the CPU board assembly from the cabinet wall. Set the CPU board assembly in a static-free work area and remove the cover. Carefully note each IC position, then remove using a chip extraction tool.

To reinstall memory circuits, orient a chip over its socket and press firmly to seat pins. *Do not force.*



CAUTION Discharge any static electricity build up in your body by touching the power supply chassis. Do this BEFORE touching or handling the electronic assemblies.

◆ **Power Supply**

Switch off power to the game. Remove screws, then unlock and remove the rear door. Unplug the IEC A.C. connector from the rear of the supply and the D.C. connector from the front. Remove two front and two rear screws from the supply, then lift it off of the power chassis. Note voltage setting.

To reinstall the power supply, set the voltage switch to the correct value. Set the supply on the power chassis and align the mounting holes. Install the four screws and the two power connectors.

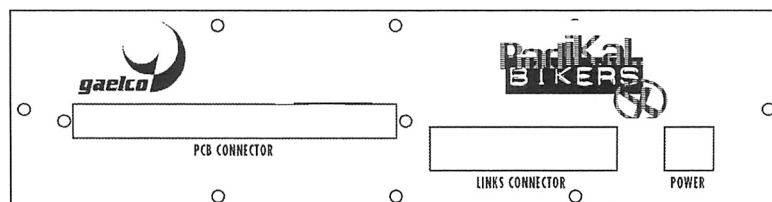
◆ **Fan**

Switch off power to the game. Remove the cabinet rear door. Open the electronics assembly cover. Disconnect the wiring harnesses, linking cable, and fan power connector from the circuit board. Remove the circuit boards from the electronics assembly box. Remove the four nuts holding the fan to the electronics assembly box.

LINKING

INTERCONNECTING GAMES

1. Verify the operation of the existing games before making any changes. Unlock the coin doors of both cabinets and press the TEST MODE switches. Check the VERSION information displayed on the first screen at the bottom. Both cabinets must have the same version number. Linking games with different versions may cause games to halt or reset at random.
2. Turn OFF the power for both cabinets. Unlock and remove the cabinet rear doors. Find the linking cable. It is shipped with the spare parts.
3. The linking cable connectors are keyed to fit one way. Orient the linking cable end plug over the right side LINKS CONNECTOR socket (nearest the POWER connector) on the Electronics Assembly. Mate the connectors and press firmly to seat fully. *Do not use excessive force.*
4. Route the cable through the cabinet interior and out of the slot or notch. Route the free end of the cable through the slot or notch in the second cabinet and attach it to the electronics as above.
5. Turn ON the power for both cabinets. The games will start up and begin the Power On tests. If no serious errors are detected, the games will enter the "attract" mode automatically. If there are errors reported on the screen, refer to Troubleshooting in Section Four for assistance.
6. Press the TEST MODE switches to enter the menu systems. Press the VIEW button to scroll through the menu screens to the GAME ASSIGNMENTS screen. Select LINK TYPE, then choose MASTER for one cabinet, and SLAVE for the other. Each machine must have a distinct LINK TYPE setting. Use the brake handle to go to the DIFFICULTY setting. Both machines must have the same DIFFICULTY setting. *Do not turn off the power or your changes will be lost.*
7. Press VIEW to scroll through the menu screens to the EXIT MENU and use the brake handle to select EXIT AND SAVE CHANGES.
8. Both machines will reset. The games will start up and begin the Power On tests. If no errors are detected, the games will enter the "attract" mode automatically and synchronize quickly.
9. Retract any excess cable back into the cabinets so that the cables do not touch the floor. This keeps the cables away from the casters during relocation and protects it somewhat from player's feet. Reinstall the rear doors onto the cabinets. Lock the rear doors and remove the key. Install screws at the top and sides of the rear doors and tighten snugly. Close and lock the cash box and coin doors.
10. If the cabinets need to be separated for service or relocation, enter the menu systems and return the LINK TYPE setting to NO LINK for both game cabinets. Make sure to save these changes before you disconnect the cable. *Do not turn off the power prior to saving the changes or they will be lost.*



LOCATION OF CONNECTOR FOR LINKING CABLE

GAME OPERATION

STARTING UP

Each time the game is first turned on or power is restored, it begins executing code out of the boot ROM. These self-diagnostic tests automatically verify and report the condition of the hardware. The screen displays information about the software version and condition of the hardware. If any of the individual tests fails, then an error message will be displayed for each test.

- * If no buttons are pressed, the system will quickly complete all tests then load and run the game.
- * Press and hold the coin door TEST button to activate the TEST MODE menu system.

Once all Power-up tests have been passed, the game goes into its "attract mode." Scenes and sounds from a typical game are alternated with previous high scores in an endless pattern until game play starts.

Insert currency to start the game. Play begins after a circuit is chosen. The game will progress until time is exhausted. The game automatically returns to the "attract mode" when play ends.

GAME RULES

The game involves a pizza delivery biker who rides through the city in competition with another driver while avoiding obstacles and other vehicles. Players can choose from several biker personalities and circuits.

Each circuit has four stages: three pizza deliveries and the return to the pizzeria. The object of the game is to complete all of the deliveries and return to the pizzeria in the shortest time possible. There are time, speed, and point bonuses throughout the course.

Players compete against drone delivery bikers or other players. Players who finish one of the four stages of a circuit automatically advance to the next stage.

INDIVIDUAL PLAY

Insert currency or tokens to start the game. Press the START button. At the CHOOSE A RIDE message, move the handlebars to the desired circuit and select it with the START button. Each circuit has a particular difficulty level: EASY (Margherita), MEDIUM (Capricciosa), or HARD (Diabola). At the message CHOOSE A BIKER, select a character with the handlebars and press the START button to begin game play.

The competition begins automatically as bikers roll out of the pizzeria onto the circuit. During the race, players must pass several CHECKPOINTS and collect bonuses to successfully complete the pizza run. The more bonuses collected during the run, the faster the player finishes the stage.

MULTIPLE PLAYERS

Two players on linked cabinets can compete head-to-head. The game begins as in individual play with the selection of a circuit and a biker. When both players have completed their selections, the bikers leave their respective pizzerias and competition begins. An indicator bar at the top of the screen shows which player is scoring more points during competition.

STATISTICS

An on-screen display continually updates status information for the player:

Score is the player's present overall score.

Best lap is the fastest time in which any player has ever completed the present circuit. That player's initials appear next to the time in minutes and seconds.

Lap time is the elapsed time for the current player.

X_left indicates the time remaining to complete the circuit.

Rev counter is the RPM of the scooter's motor.

Speedometer shows the current scooter speed.

Icon shows the player's current position and indicates whether the competitor is a drone ("CPU") or a linked cabinet ("1UP/2UP").

PLAYER CONTROLS

◆ **START Button**

This button allows players to begin or continue play. It also selects each player's circuit and biker. This same button selects items from the TEST MODE menus during service or adjustment.

◆ **HANDLEBARS**

The handlebars are used to guide the biker's scooter on the streets and to avoid fixed or moving objects. Pushing down on the handlebars while the scooter is in motion causes the scooter's front wheel to jump in the air. The handlebars move the cursor to different selections in the TEST MODE menus during service.

◆ **BRAKE**

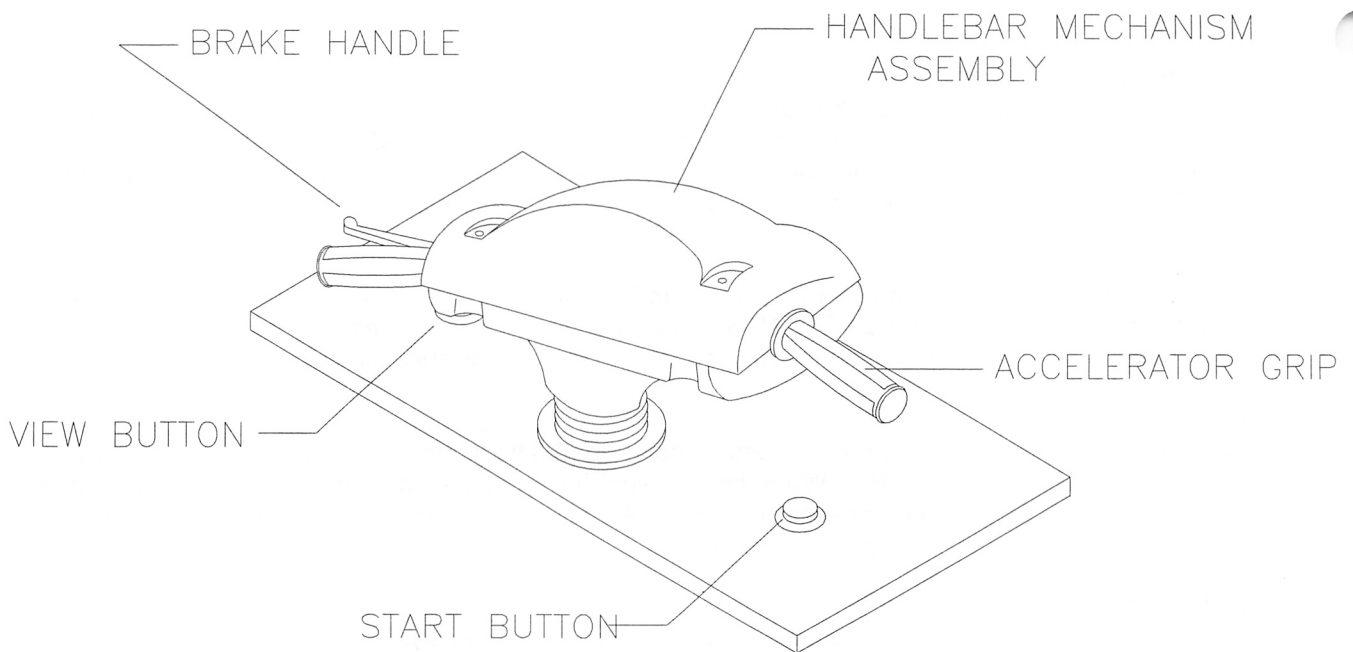
The scooter brakes are activated by squeezing the handle opposite the accelerator grip. When the handle is released, the scooter begins to roll.

◆ **ACCELERATOR**

The right-hand handlebar grip is also the scooter's accelerator. The handlebar grip rotates downward to accelerate the scooter.

◆ **VIEW BUTTON**

This button controls the player's road perspective during play. Players can select from one of several views.



TYPICAL PLAYER CONTROL LOCATIONS

OPERATOR CONTROLS

CABINET SWITCHES

- ◆ **Power Switch** (usually on the top or back panel of the cabinet)
The **Power Switch** turns off the game during service. It does not reset the game variables.
- ◆ **Monitor Remote Adjustments** (typically in the cabinet near the monitor or control panel)
The **Monitor Remote Adjustment Board** sets the video display for optimum viewing.
- ◆ **Slam Tilt Switch** (on coin door) prevents cabinet abuses such as pounding to obtain free games.

CONTROL SWITCHES

- ◆ **Volume Down and Volume Up Buttons** (frequently mounted on or behind coin door in many games)
The **Volume Down** and **Volume Up** push-button switches increase or decrease game sound levels. Press either button briefly to make minor changes. Press and hold a button to make major changes.

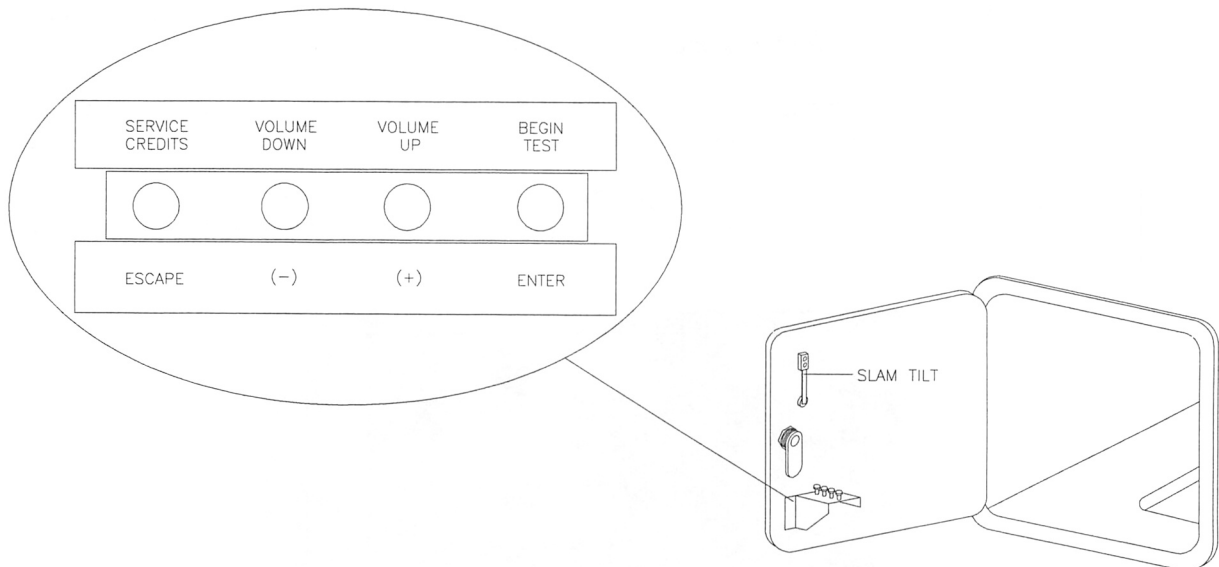
NOTE

The Attract Mode volume is controlled independently of the Game Mode volume.

- ◆ **Test Mode Button** (mounted on or behind the coin door on games equipped with this switch)
The **Test Mode** push-button switch enters the menu system. Press the Test Mode button briefly to run automatic tests. To save changes, use the EXIT selection on the TEST MODE main menu.
- ◆ **Service Credit Buttons** (mounted on or behind the coin door on games equipped with this switch)
The **Service Credit** push-button switch allots credits without changing the game's bookkeeping total.

These buttons may also be used instead of the player controls when operating the menu system.

NOTE: The coin door must be open to reach the control switches in most games.



TYPICAL CONTROL SWITCH LOCATIONS

TEST MODE MENU SYSTEM

SYSTEM OVERVIEW

Game variables and diagnostics are presented in a series of on-screen TEST MODE menus. The TEST MODE Main Menu screen allows the operator to select one of several testing or statistical features and to save changes made in the sub-menus. Each sub-menu screen displays one specific group of choices in a detail menu. The detail menu presents data, settings, or runs a test. You must be at the detail menu level to detect errors, make changes, or activate tests. Both the operator controls and the player controls are used to move through the menus and start or stop particular routines.

ORGANIZATION

TEST MODE main menu screen items fall into three categories: options, statistics, and tests. Items must be activated manually by pressing the START button after moving the cursor to them with the brake handle.

Sub-menu screen items offer the operator choices within a category. Some items have no sub-menu while others may have more than one. Sub-menus always have an option to return to the previous menu.

Detail-menu screen items contain specific information. The operator must select an item to run tests or to make changes. There is always a way to go back to the previous menus from the detail menu screen.

To scroll through the menus, use the VIEW button. *Only one highlighted item can be selected at a time.* To return the game to normal, select EXIT AND SAVE CHANGES from the last TEST MODE menu, then press the indicated button. This saves any changes made in the previous menus.

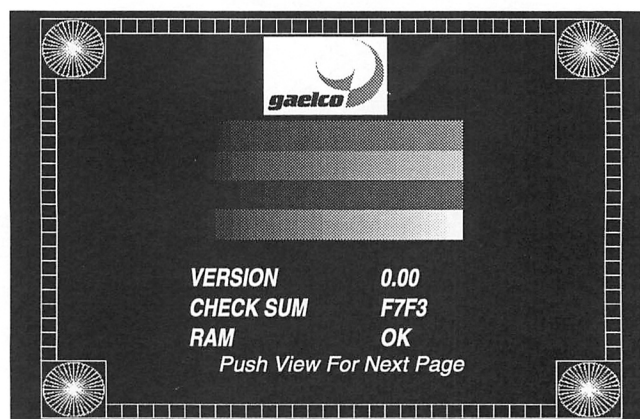
SCREEN ADJUSTMENTS

The SCREEN ADJUSTMENTS display provides patterns for verifying the monitor performance or making adjustments. There are also basic tests of the critical CPU Board components.

Pressing the TEST button causes the SCREEN ADJUSTMENTS display to appear on screen. This test screen also displays during the start-up self-test, and includes patterns for adjusting monitor controls. Convergence patterns appear at each corner. Color bars for hue and brightness adjustments display across the center of the screen. Patterns and bars should be sharp and distinct.

The monitor controls to adjust these features may be at the rear of the coin door cavity, attached to the wall of the cabinet, or mounted near the neck of the CRT.

The software version, check sum, and hardware RAM testing status also are displayed on the screen. After making any changes or adjustments to the video monitor, press the VIEW button to advance to the next menu screen.



SCREEN ADJUSTMENTS DISPLAY AND MENU

INPUT TEST

START:	OFF
VIEW CHANGE:	OFF
BRAKE:	OFF
ACCELERATOR:	OFF
HANDLE:	000 127
HANDLE UP:	OFF
COIN CHUTE:	OFF
SERVICE:	OFF

Push view for next page

INPUT TEST

The INPUT TEST screen has checks of the game controls and coin chute. Pressing each control panel button causes an indicator on screen to change from OFF to ON. Moving the steering mechanism from left to right causes the HANDLE values to change. Pressing down on the steering mechanism causes the HANDLE UP value to change from OFF to ON. Dropping a coin down the coin mechanism causes the COIN CHUTE value to change briefly from OFF to ON.

If the control indicator does not change as expected, check the wiring harnesses for that device. Refer to Section Four, Troubleshooting.

The normal HANDLE values are 000 at full left and 256 at full right for the left-hand number. The same value should be within the range of 108 to 148 when the handlebar is centered. Recalibrate the steering mechanism using the HANDLE ADJUST test if necessary.

If each control works properly, press VIEW to go to the next testing menu.

GAME ASSIGNMENTS

1 COIN(S)	1 CREDIT(S)
2 CREDIT(S)	START
2 CREDIT(S)	CONTINUE
LINK TYPE:	NO LINK
ADVERTISE SOUND:	YES
DIFFICULTY:	HARD
PASS NEXT LEVEL:	YES
PROCESS BAR:	NO

Push view for next page
Push brake for select
Push start for confirm

GAME ASSIGNMENTS

This screen contains settings for game parameters such as coin options, linking, game difficulty, and attract volume. The displayed values are factory settings.

The left-hand column contains the type of settings, whereas the right-hand column contains the status of the current setting. Squeeze the brake handle to move through the various settings. Press the START button to change a setting when it is flashing.

COIN(S) is the number of coins required to obtain the number of CREDIT(S) set in the opposite column. The CREDIT(S) lines in the left-hand column set the number of credits required to START or CONTINUE a game. When COIN(S) is set to zero, the game allows free play.

LINK TYPE controls the game's linking capabilities. Set the game to OFF ("NO LINK") if no other cabinet is connected. To connect two linked games, each must have an individual setting for linking to work properly. One game must be set to MASTER, and the other to SLAVE. For more information, see the section above titled LINKING.

ADVERTISE SOUND controls whether the game will have sound during the time between games. DIFFICULTY changes the level of expertise a player needs to advance to the next stage through a range from "EASY" to "HARDEST."

PASS NEXT LEVEL sets whether a player can advance to the next circuit after successfully finishing the four stages of each circuit. YES rewards the player with a new circuit. NO ends the game after the fourth stage of the circuit and requires the player to add coins.

PROCESS BAR is a software development tool. It should always be set to "NO."

Press the VIEW button to advance to the next menu screen.

**HANDLE ADJUST
PUSH START TO ADJUST**

Push view for next page

HANDLE ADJUST

POTE: 128

===|===

NORM: 128

===|===

**MOVE HANDLE LEFT
AND RIGHT TO ADJUST**

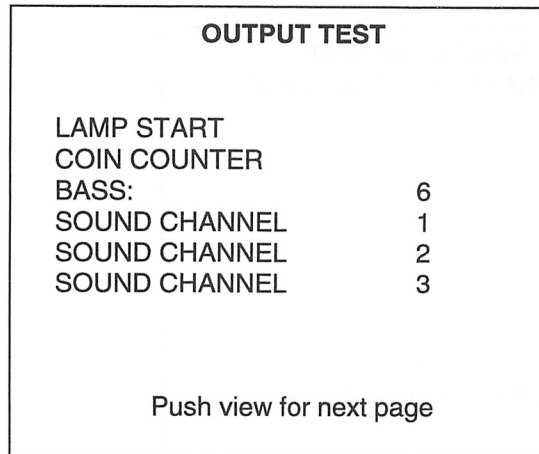
Push view for next page

HANDLE ADJUST

HANDLE ADJUST recalibrates the steering mechanism. Press START at the HANDLE ADJUST menu screen. When the screen display changes to show the POTE and NORM scales, move the steering mechanism fully to the left, then fully to the right. The game will measure the value of the potentiometer at each extreme and take the arithmetic mean of the values to determine a centering point.

The values shown on screen during this test are for reference purposes only. The center value of the indicator POTE should be between 100 and 150, and the left-hand limit should be 20 or greater, while the right-hand limit should be less than 235. The value of NORM is the mean of the two limit values.

After completing this test, push the VIEW button to advance to the next menu screen.



OUTPUT TEST

The OUTPUT TEST screen items check the operation of output signals from the CPU. Use the brake lever to select each test, and the START button to activate or make changes in each category.

LAMP START is not used in this game.

COIN COUNTER tests the coin mechanism switch contact. With each press of the START button, the coin counter meter advances by one unit.

BASS plays music continually to adjust the tone of the sound output. The level is adjustable from zero (no bass) to nine (full bass).

The SOUND CHANNEL items send a test tone to the selected channel. Channel 1 is the left-hand speaker, Channel 2 is the right-hand speaker, and Channel 3 is an optional sub-woofer (not used in this cabinet).

Press VIEW to advance to the next menu screen.

BOOK-KEEPING 1/2		BOOK-KEEPING 2/2	
COINS:	1234	TOTAL TIME:	000 00 00
COIN CREDITS:	1234	PLAY TIME:	000 00 00
SERVICE CREDITS:	1234	AVERAGE TIME:	00 00
TOTAL CREDITS:	1234	LONGEST TIME:	00 00
NUMBER OF GAMES:	1234	SHORTEST TIME:	00 00
CONTINUE GAMES:	1234		
P1 GAMES:	1234		
P2 GAMES:	1234		
Push view for next page		Push view for next page	

BOOK KEEPING

The BOOK KEEPING screens display general game play statistics.

The first screen includes information on the number of coins accepted, credits allotted, service credits allotted, total credits allotted, games completed, continued games completed, single-player games, and linked games. The second screen displays information on the duration of a typical game.

There are no adjustable settings on either of the BOOK KEEPING screens. To reset the bookkeeping totals, go to the final menu page and choose RESET BOOK-KEEPING. To delete the high scores, select RESET HALL OF FAME. Press VIEW to advance to the next menu screen.

TIME HISTOGRAM			
0-2:	1234	2-2.5:	1234
2.5-3:	1234	3-3.5:	1234
3.5-4:	1234	4-4.5:	1234
4.5-5:	1234	5-5.5:	1234
5.5-6:	1234	6-7:	1234
7-8:	1234	8-X:	1234
WINNERS MEDIUM:	1234		
WINNERS HOT:	1234		
WINNERS LIGHT:	1234		
Push view for next page			

TIME HISTOGRAM

The TIME HISTOGRAM screen contains information on the number of players to win the circuits of the game. The top part of the screen shows a range of total game play times. The bottom of the screen shows the number of players winning each circuit.

Press VIEW to advance to the next menu screen.

GAME STATISTICS		
MARGHERITA		
GAMEOVER/	CONTINUE/	WINNERS
1: 123	/ 123 /	123
2: 123	/ 123 /	123
3: 123	/ 123 /	123
4: 123	/ 123 /	123

Push view for next page

GAME STATISTICS		
DIABOLA		
GAMEOVER/	CONTINUE/	WINNERS
1: 123	/ 123 /	123
2: 123	/ 123 /	123
3: 123	/ 123 /	123
4: 123	/ 123 /	123

Push view for next page

GAME STATISTICS		
CAPRICCIOSA		
GAMEOVER/	CONTINUE/	WINNERS
1: 123	/ 123 /	123
2: 123	/ 123 /	123
3: 123	/ 123 /	123
4: 123	/ 123 /	123

Push view for next page

GAME STATISTICS

The GAME STATISTICS screens give more detailed information about player abilities in each circuit of the game. Three screens break down data into the number of games over, games continued, and winners for each stage of each circuit. Press the VIEW button to advance the display to the desired circuit. These screens help the operator determine whether the game difficulty is appropriate for the players at a particular location.

Press VIEW to advance through each GAME STATISTICS screen and to the next menu screen.

EXIT WITHOUT SAVE CHANGES
EXIT AND SAVE CHANGES
RESET HALL OF FAME
RESET BOOK-KEEPING

Push view for next page
Push brake for select
Push start for confirm

EXIT MENU

This menu gives options for saving or discarding changes made in previous menus and resetting high scores and book keeping totals. Turning off the machine before choosing EXIT AND SAVE CHANGES will discard any changes to previous screens.

To keep all changes made in previous screens, use the brake lever to highlight EXIT AND SAVE CHANGES, then press START to save the changes and return the game to ATTRACT mode.

RADIKAL BIKERS™

SECTION TWO

PARTS

Warning

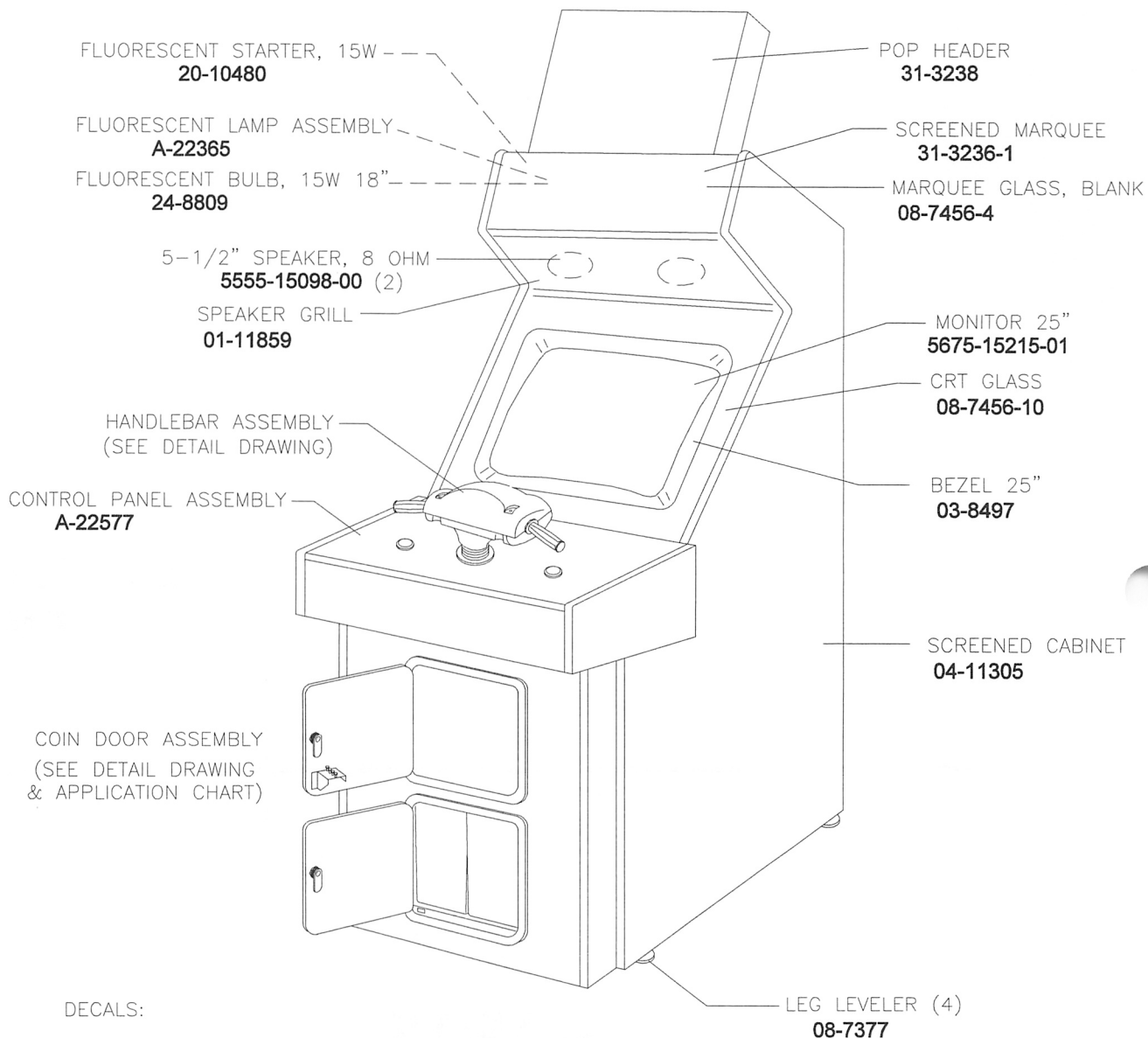
USE OF NON-ATARI PARTS OR CIRCUIT MODIFICATIONS MAY CAUSE SERIOUS INJURY OR EQUIPMENT DAMAGE! USE ONLY ATARI AUTHORIZED PARTS.

* For safety and reliability, substitute parts and modifications are not recommended.

* Substitute parts or modifications may void FCC type acceptance.

RADIKAL BIKERS (30038) VIDEO CABINET 25"

FRONT VIEW

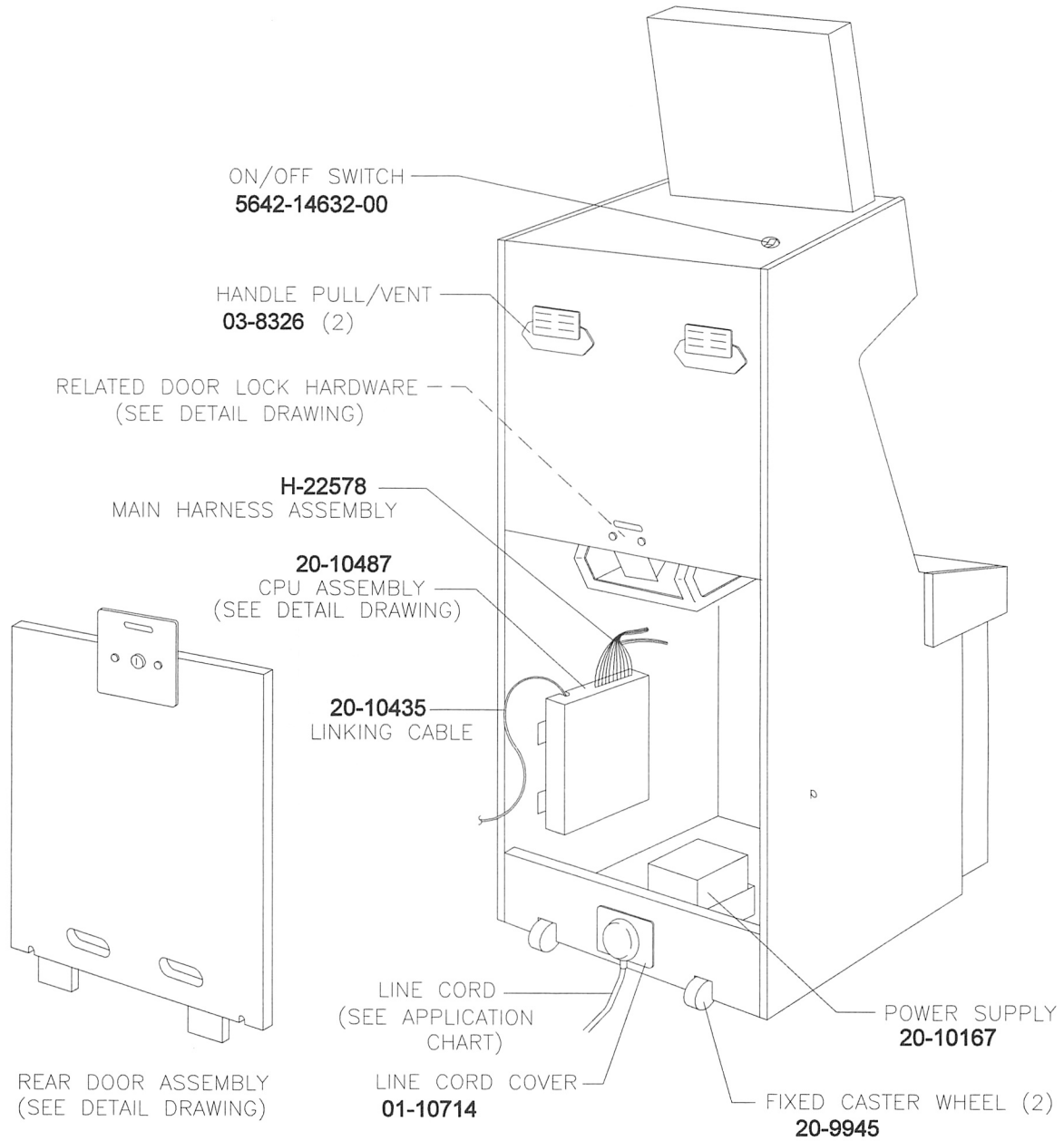


DECALS:

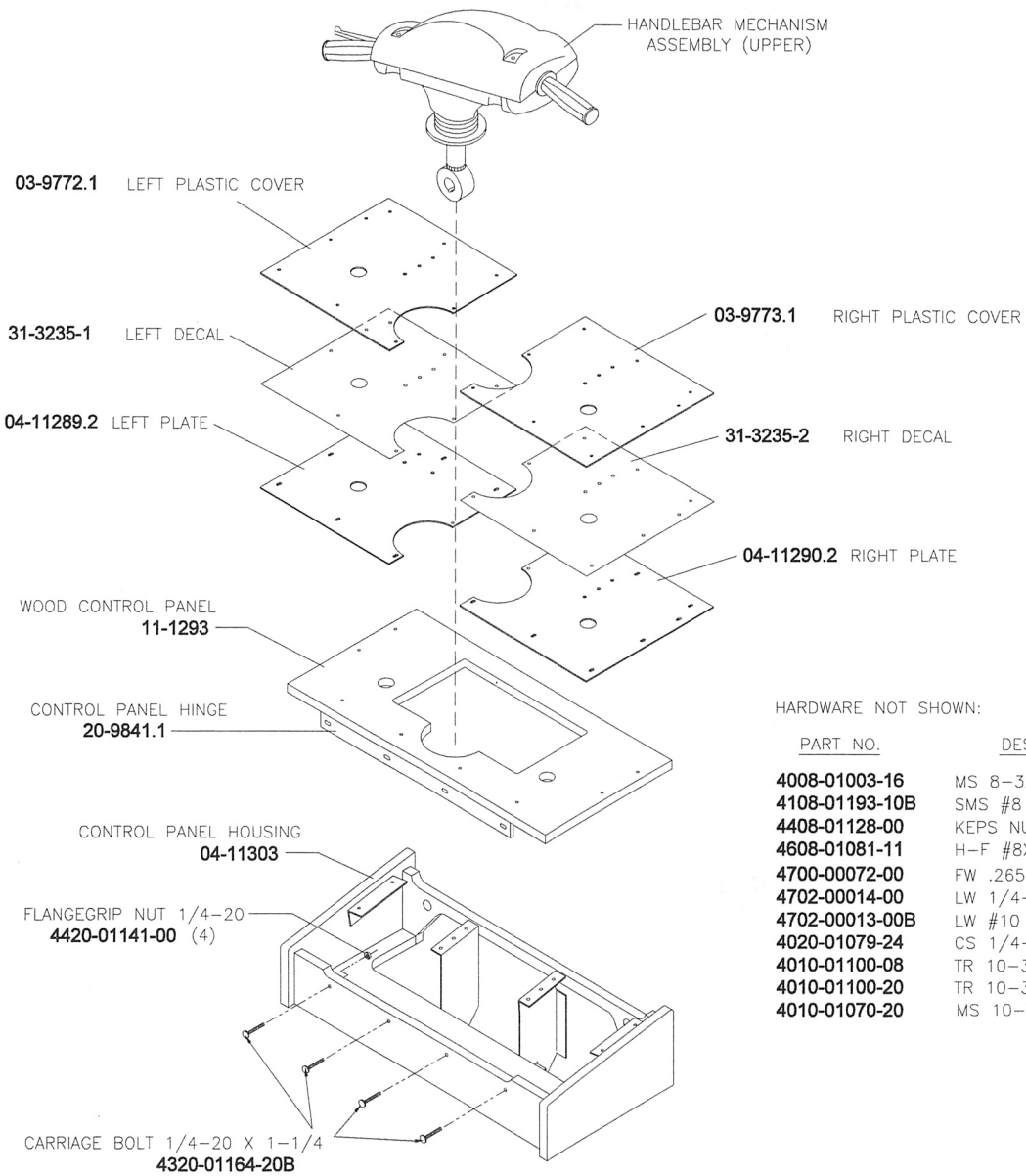
<u>PART NO.</u>	<u>DESCRIPTION</u>
31-3232	CABINET SIDE PANEL, LEFT
31-3233	CABINET SIDE PANEL, RIGHT
31-3234-1	CONTROL PANEL HOUSING, LEFT SIDE
31-3234-2	CONTROL PANEL HOUSING, RIGHT SIDE
31-3234-3	CONTROL PANEL HOUSING, FRONT
31-3235-1	CONTROL PANEL OVERLAY, LEFT
31-3235-2	CONTROL PANEL OVERLAY, RIGHT
31-3237	BEZEL BOTTOM

RADIKAL BIKERS (30038) VIDEO CABINET 25"

REAR VIEW



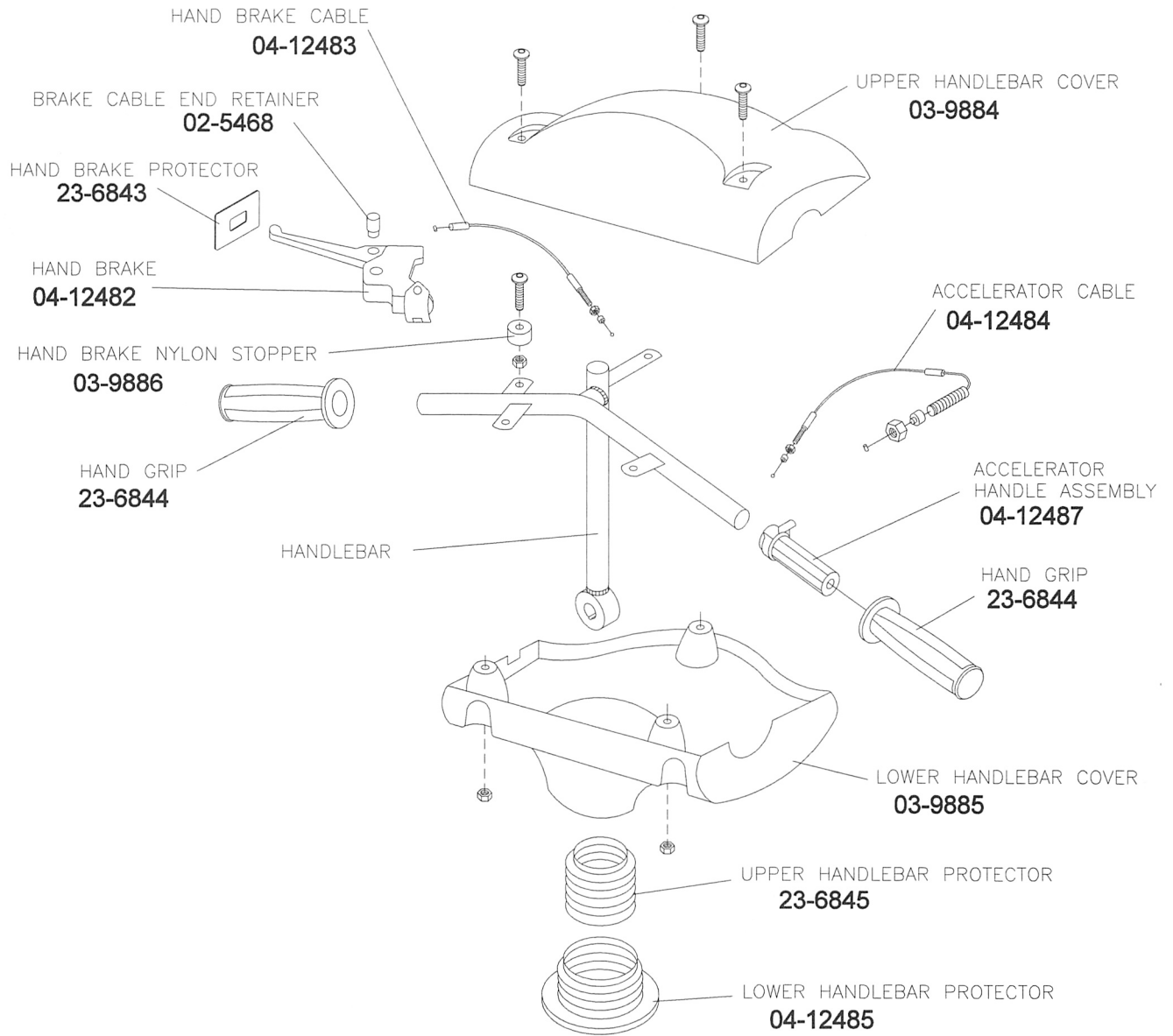
A-22577 CONTROL PANEL ASSEMBLY

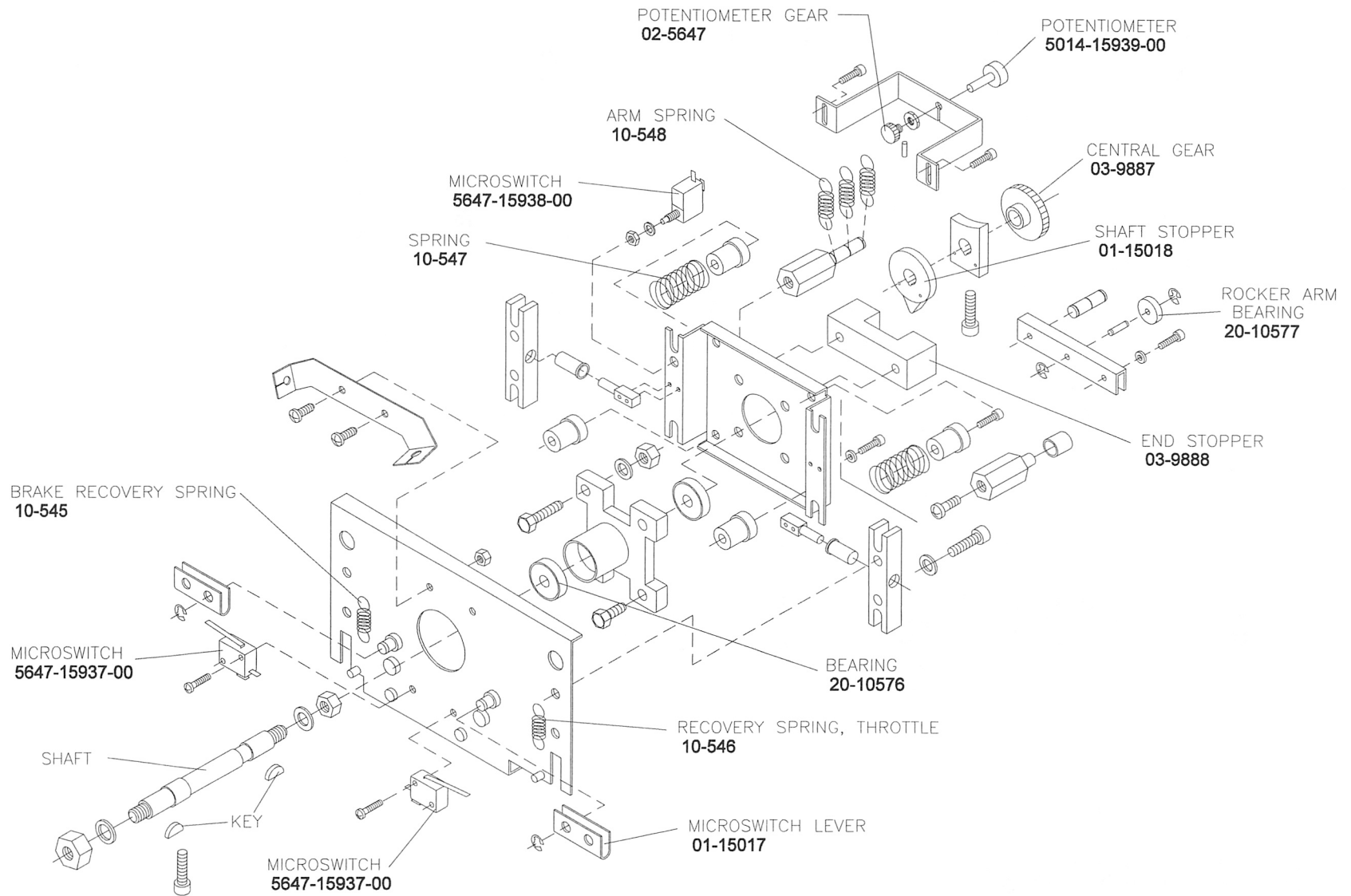


HARDWARE NOT SHOWN:

PART NO.	DESCRIPTION
4008-01003-16	MS 8-32 X 1 P-PH-S (8)
4108-01193-10B	SMS #8 X 5/8 TAMP RES (14)
4408-01128-00	KEPS NUT 8-32 (4)
4608-01081-11	H-F #8X11/16 PL-HWH (6)
4700-00072-00	FW .265 x .500 x .032 (4)
4702-00014-00	LW 1/4-20 INTERNAL TOOTH (4)
4702-00013-00B	LW #10 INTERNAL TOOTH, BLACK (16)
4020-01079-24	CS 1/4-20 X 1-1/2 SH UNC (4)
4010-01100-08	TR 10-32 X 1/2 BH, BLACK (8)
4010-01100-20	TR 10-32 X 1-1/4 BH, BLACK (4)
4010-01070-20	MS 10-32 X 1-1/4 HH (4)

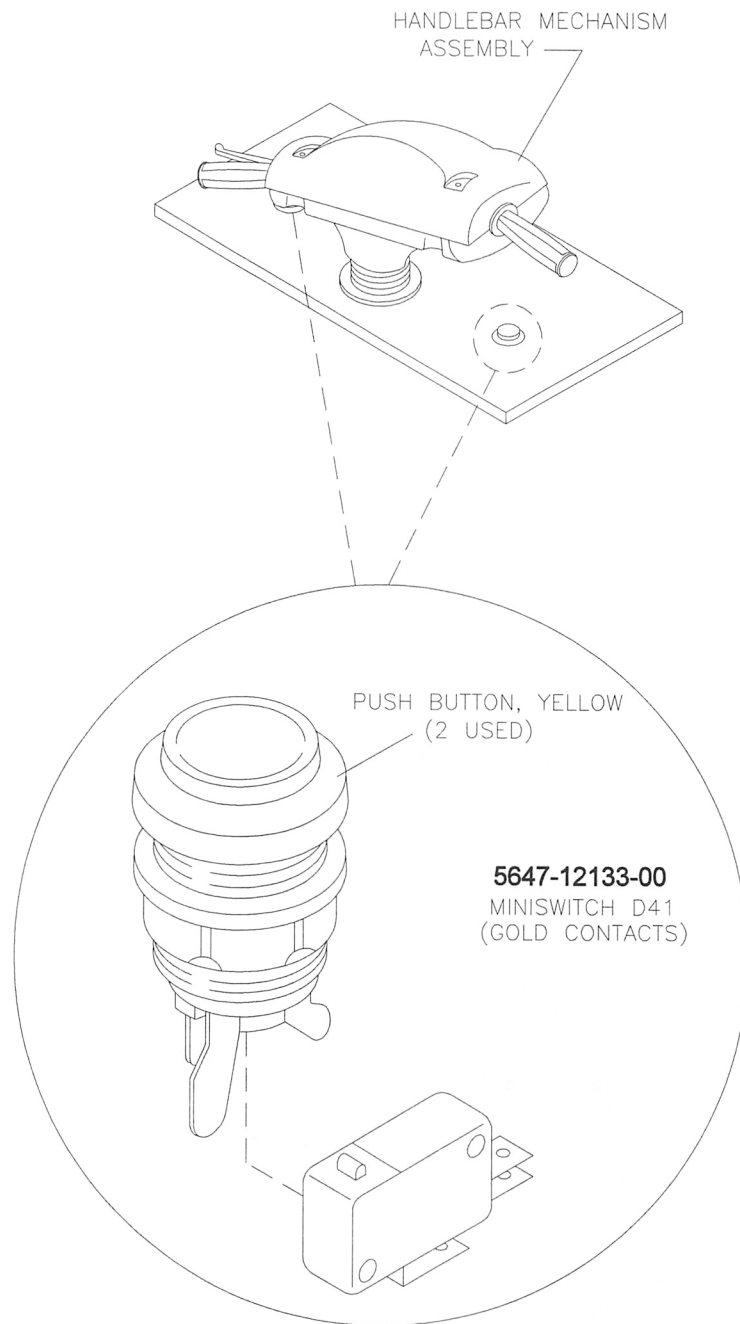
HANDLEBAR MECHANISM – UPPER





HANDLEBAR MECHANISM - LOWER

20-10209-5 PUSHBUTTON ASSEMBLY



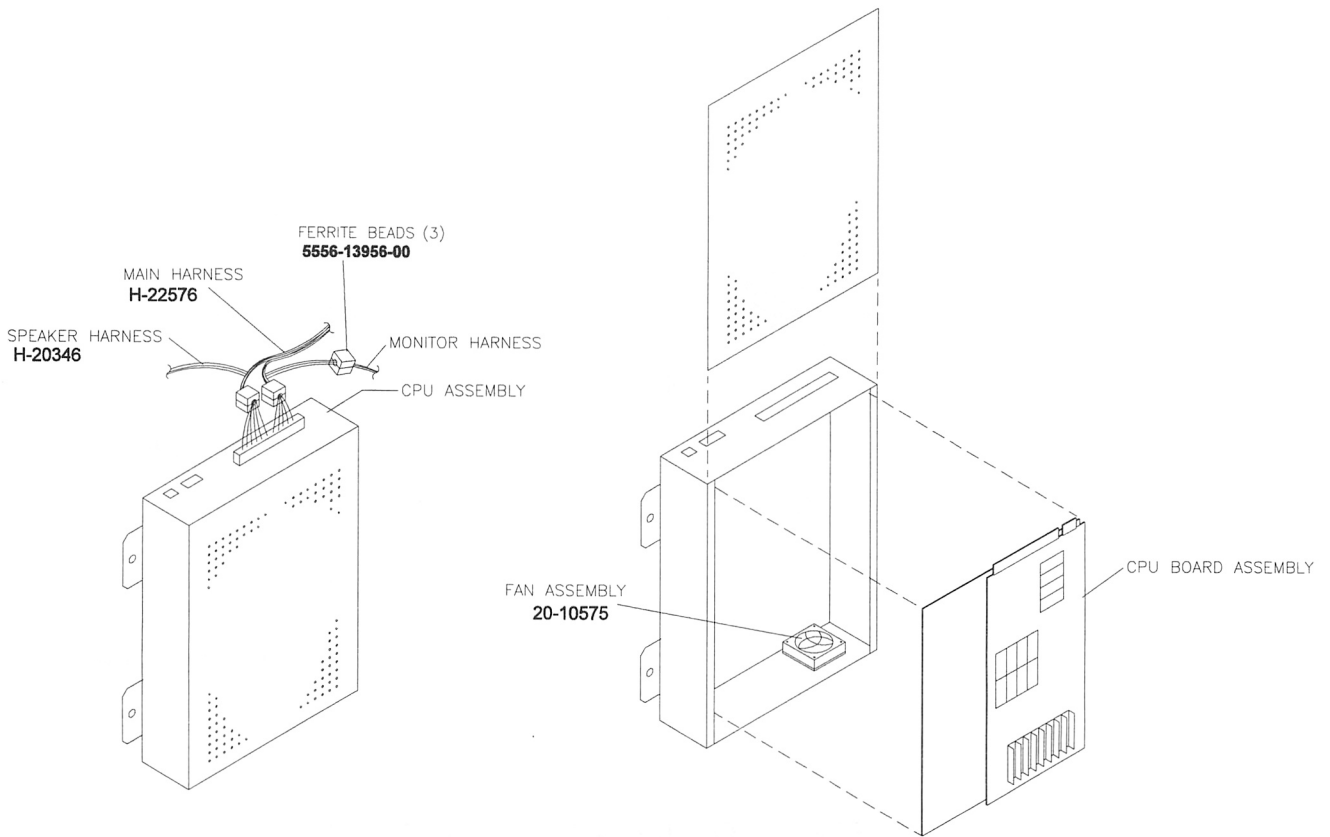
CPU BOARD ASSEMBLY

INDICATOR, SWITCH AND REPLACEABLE COMPONENT LOCATIONS

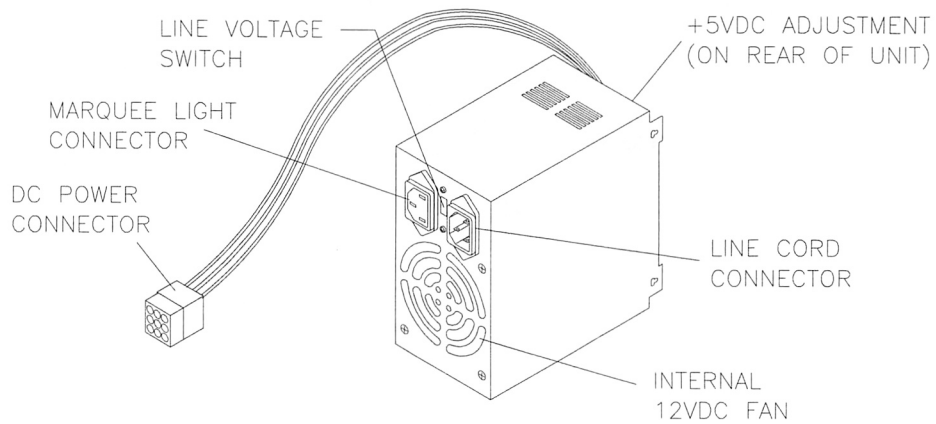
Field Replaceable Parts – Upper Board Assembly

DESIGNATION	PART NUMBER	FUNCTION	DESCRIPTION
IC6	A-5343-30038-1	Game Program RAB6	EPROM Assembly
IC12	A-5343-30038-2	Game Program RAB12	EPROM Assembly
IC14	A-5343-30038-3	Game Program RAB14	EPROM Assembly
IC19	A-5343-30038-4	Game Program RAB19	EPROM Assembly
IC24	A-5343-30038-5	Game Program RAB24	EPROM Assembly
IC25	A-5343-30038-6	Game Program RAB25	EPROM Assembly
IC26	A-5343-30038-7	Game Program RAB26	EPROM Assembly
IC27	A-5343-30038-8	Game Program RAB27	EPROM Assembly
IC32	A-5343-30038-5	Game Program RAB24	EPROM Assembly
IC33	A-5343-30038-6	Game Program RAB25	EPROM Assembly
IC34	A-5343-30038-7	Game Program RAB26	EPROM Assembly
IC35	A-5343-30038-8	Game Program RAB27	EPROM Assembly
IC51	A-5370-15717	Dual Power Amplifier	TDA 1552Q Audio IC
IC52	A-5370-15717	Dual Power Amplifier	TDA 1552Q Audio IC
FAN	20-10575	Cooling Fan	Cooling Fan 12VDC

20-10487 ELECTRONICS ASSEMBLY



POWER SUPPLY 20-10167

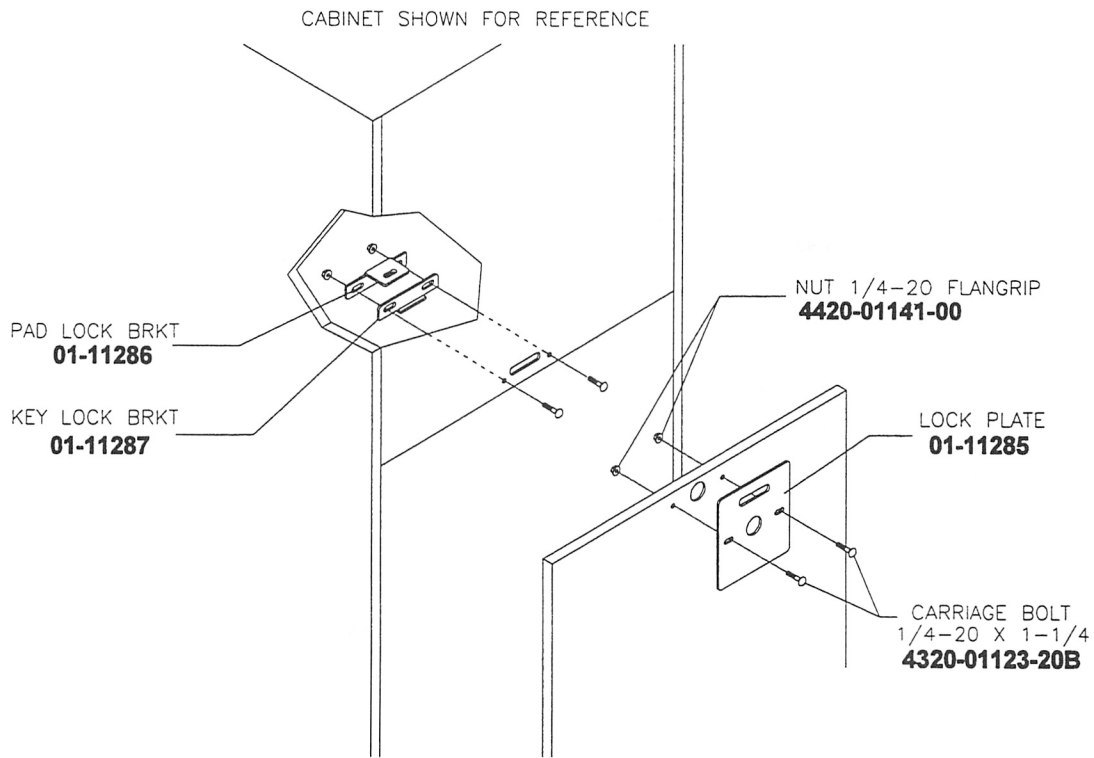


D.C. MAIN POWER CONNECTOR

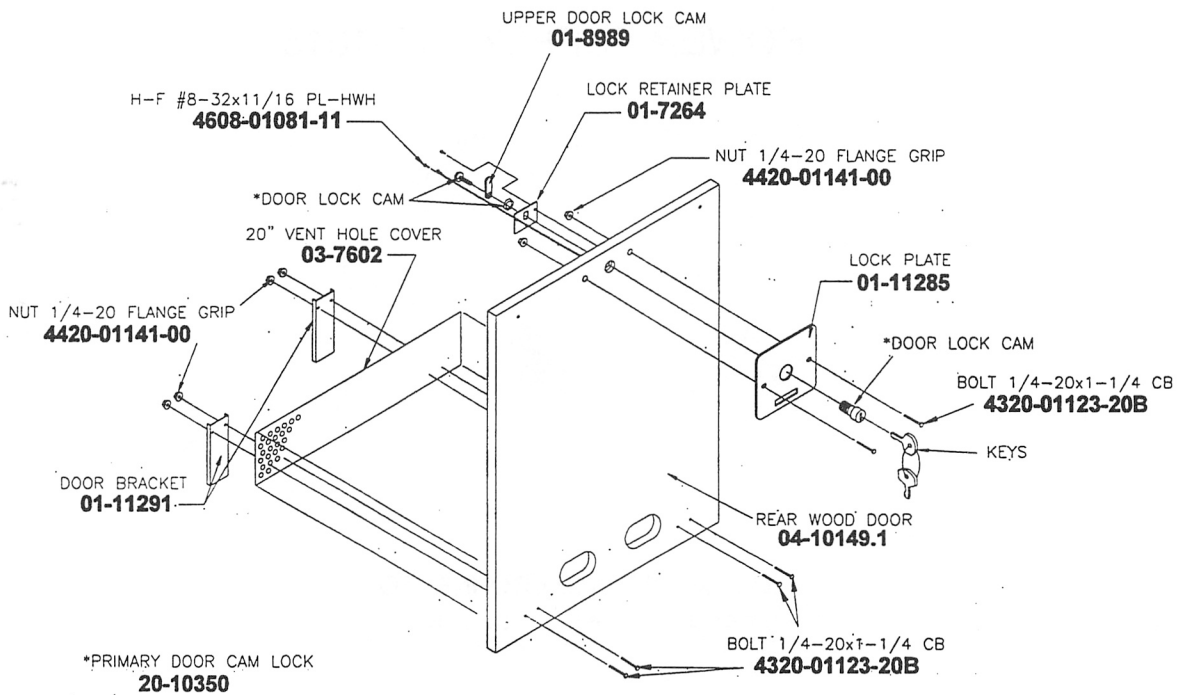
Connector Pin #	Pin Function	Designation Wire Color
1, 2, 3	+5VDC	Red
4, 5, 6	Ground	Black
7	-5VDC	Yellow*
8	+12VDC	Orange*
9	-12VDC	Blue*

*Note: Many computer grade power supplies use yellow for +12V, blue for -5V, and white for -12V. This is acceptable as long as the pinout is correct.

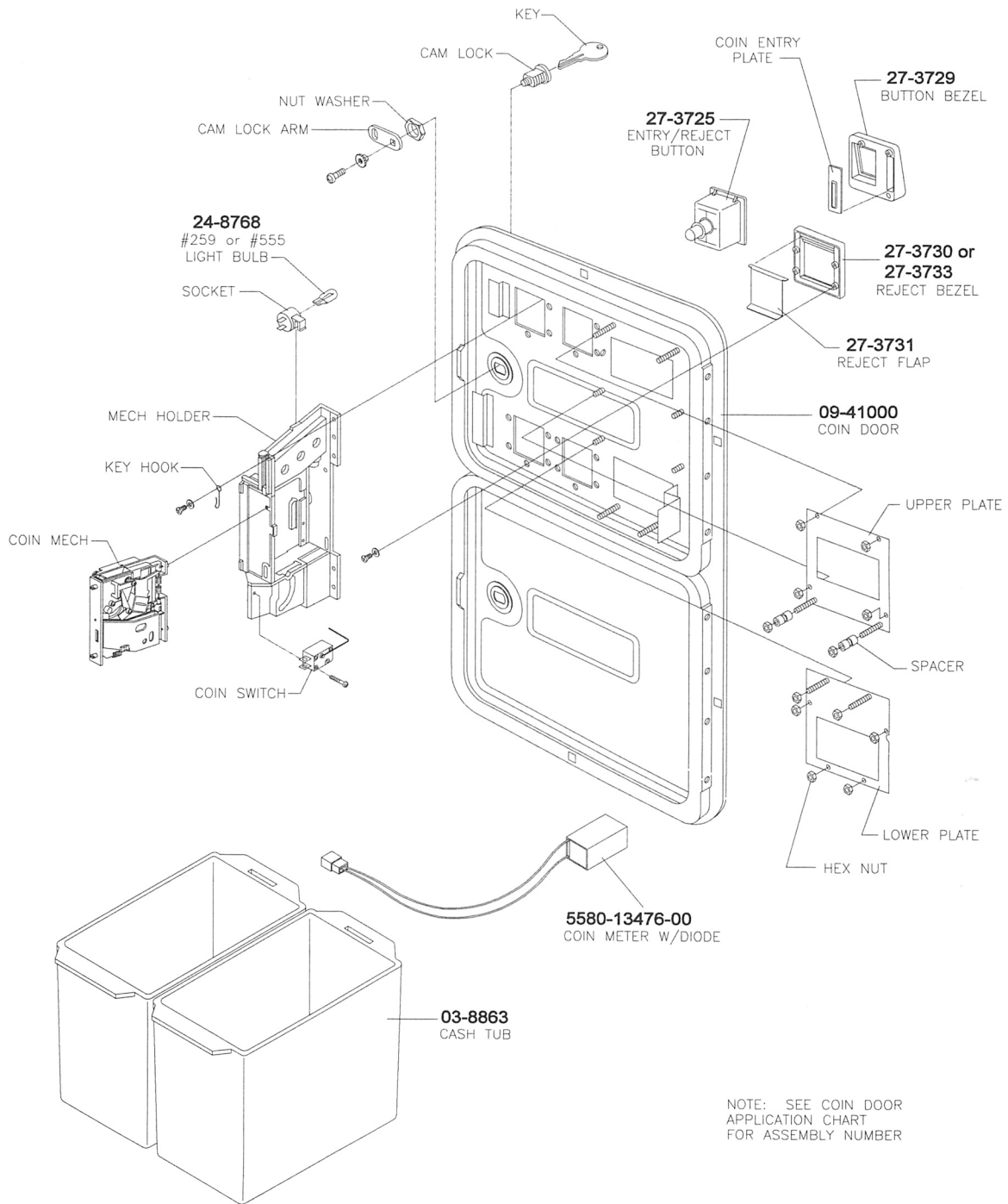
REAR DOOR LOCK ASSEMBLY



REAR DOOR ASSEMBLY A-20281



COIN DOOR ASSEMBLY



LINE CORD APPLICATION CHART

Part Number Country	5850- 13271- 00	5850- 13272- 00	5850- 13273- 00	5850- 13275- 00	5850- 13276- 00	5850- 13277- 00	5850- 13278- 00
USA	■						
UK			■				
Italy				■			
Japan							■
New Zealand						■	
Germany		■					
Spain		■					
Denmark		■					
Finland		■					
Holland		■					
Norway		■					
Switzerland					■		
Hungary		■					
Canada	■						
Austria		■					
France		■					
Australia						■	
Belgium		■					
Saudi Arabia		■					
India		■					
Indonesia			■				

COIN DOOR APPLICATION CHART

ELECTRO-MECHANICAL COIN DOOR ASSEMBLIES

Part Number 09-50000-	02	03	06	07	09	11	13	14	15	17	18	20	22	23	24	33	38	86	87
Country																			
USA																■			
Italy								■											
Japan									■										
New Zealand										■									
Germany	■																		
Spain												■							
Denmark					■														
Finland						■													
Holland							■												
Norway											■								
Switzerland													■						
Hungary														■					
Canada															■				
Austria		■																	
Australia			■																
Belgium				■															
Saudi Arabia																	■		
India																			■
Indonesia																		■	

RADIKAL BIKERS



SECTION THREE

WIRING

Warning

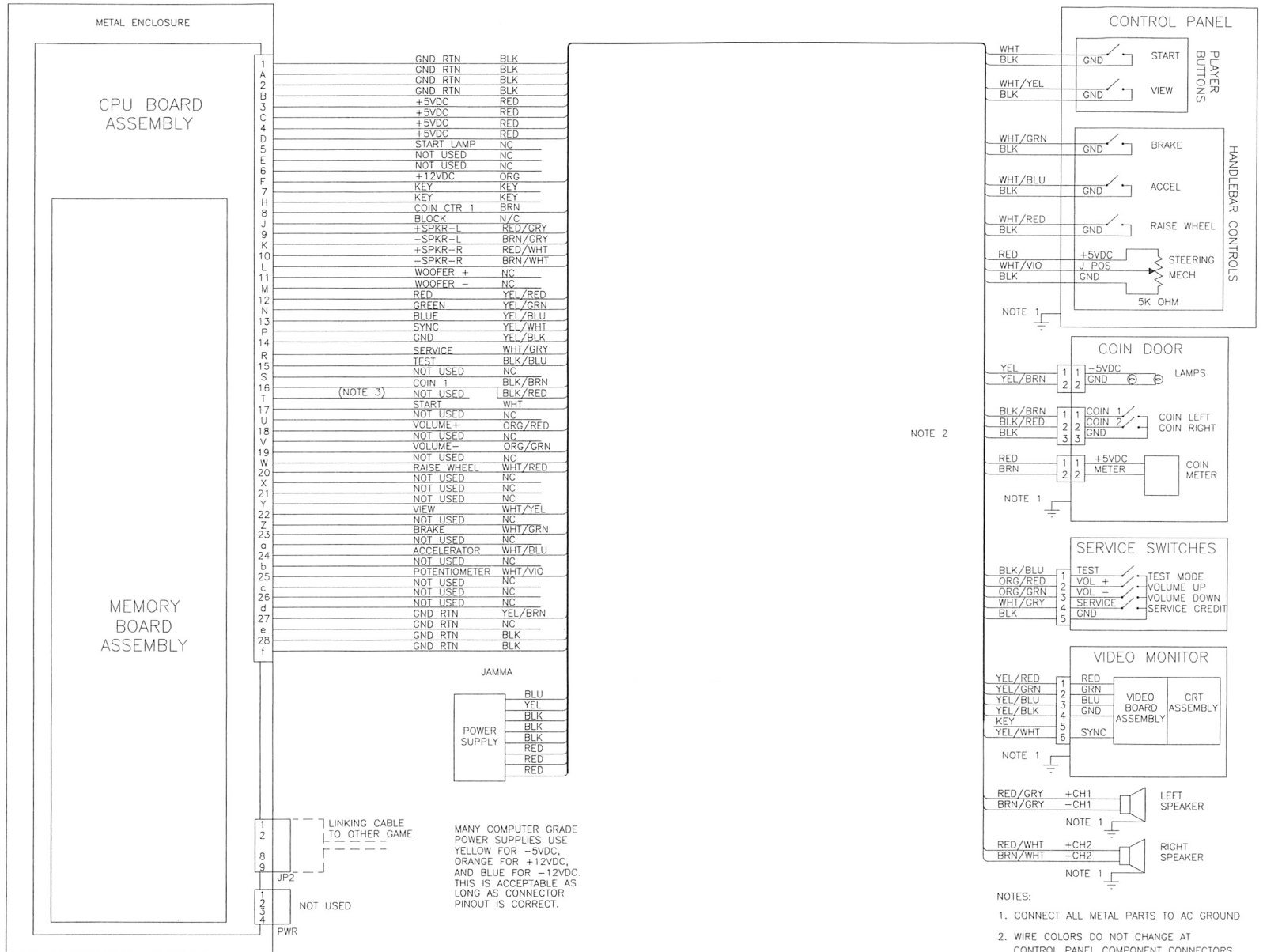
Failure to reconnect all ground wires or replace metal shields and covers with each mounting screw installed and securely tightened may result in radio frequency interference.

Edge Connector Chart

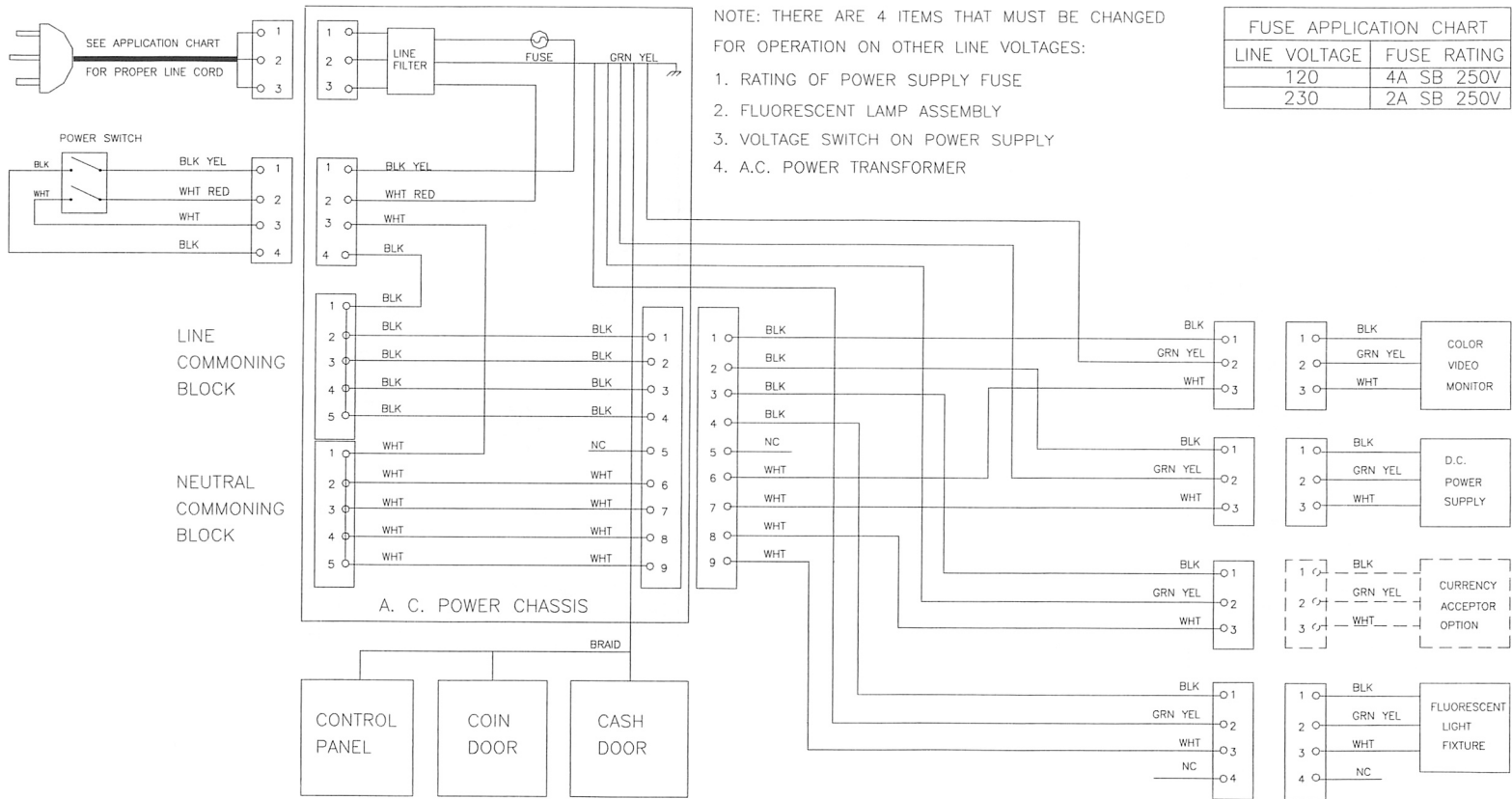
FUNCTION	WIRE COLOR	PIN	PIN	WIRE COLOR	FUNCTION
Ground	Black	A	1	Black	Ground
Ground	Black	B	2	Black	Ground
+5VDC	Red	C	3	Red	+5VDC
+5VDC	Red	D	4	Red	+5VDC
Not Used	N/C	E	5	N/C	Start Lamp
Not Used	N/C	F	6	Orange	+12VDC
Key	N/C	H	7	N/C	Key
Block	N/C	J	8	Brown	Coin Counter 1
Speaker -, Left	Brown-Grey	K	9	Red-Grey	Speaker +, Left
Speaker -, Right	Brown-White	L	10	Red-White	Speaker +, Right
Woofer -	N/C	M	11	Woofer +	N/C
Video Green	Yellow-Green	N	12	Yellow-Red	Video Red
Video Sync	Yellow-White	P	13	Yellow-Blue	Video Blue
Service Credits	White-Grey	R	14	Yellow-Black	Video Ground
Not Used	N/C	S	15	Black-Blue	Test
Not Used	N/C	T	16	Black-Brown AND Black-Red	Coin 1
Not Used	N/C	U	17	White	Start
Not Used	N/C	V	18	Orange-Red	Sound +
Not Used	N/C	W	19	Orange-Green	Sound -
Not Used	N/C	X	20	White-Red	Raise Wheel
Not Used	N/C	Y	21	N/C	Not Used
Not Used	N/C	Z	22	White-Yellow	View
Not Used	N/C	a	23	White-Green	Brake
Not Used	N/C	b	24	White-Blue	Accelerator
Not Used	N/C	c	25	White-Violet	Potentiometer
Not Used	N/C	d	26	N/C	Not Used
Not Used	N/C	e	27	Yellow-Brown	Ground
Ground	Black	f	28	Black	Ground
SOLDER SIDE			COMPONENT SIDE		

D.C. Power Source Voltage Limits

FUNCTION	RANGE LIMITS	COLOR	FUNCTION	RANGE LIMITS	COLOR
Digital Circuits	+4.90V to +5.10V	Red	Coin Lights	-4.75V to -5.25V	Yellow
Audio, Lights	+11.5V to +13.5V	Orange	Auxiliary Power	-11.5V to -13.5V	Blue



CABINET WIRING DIAGRAM



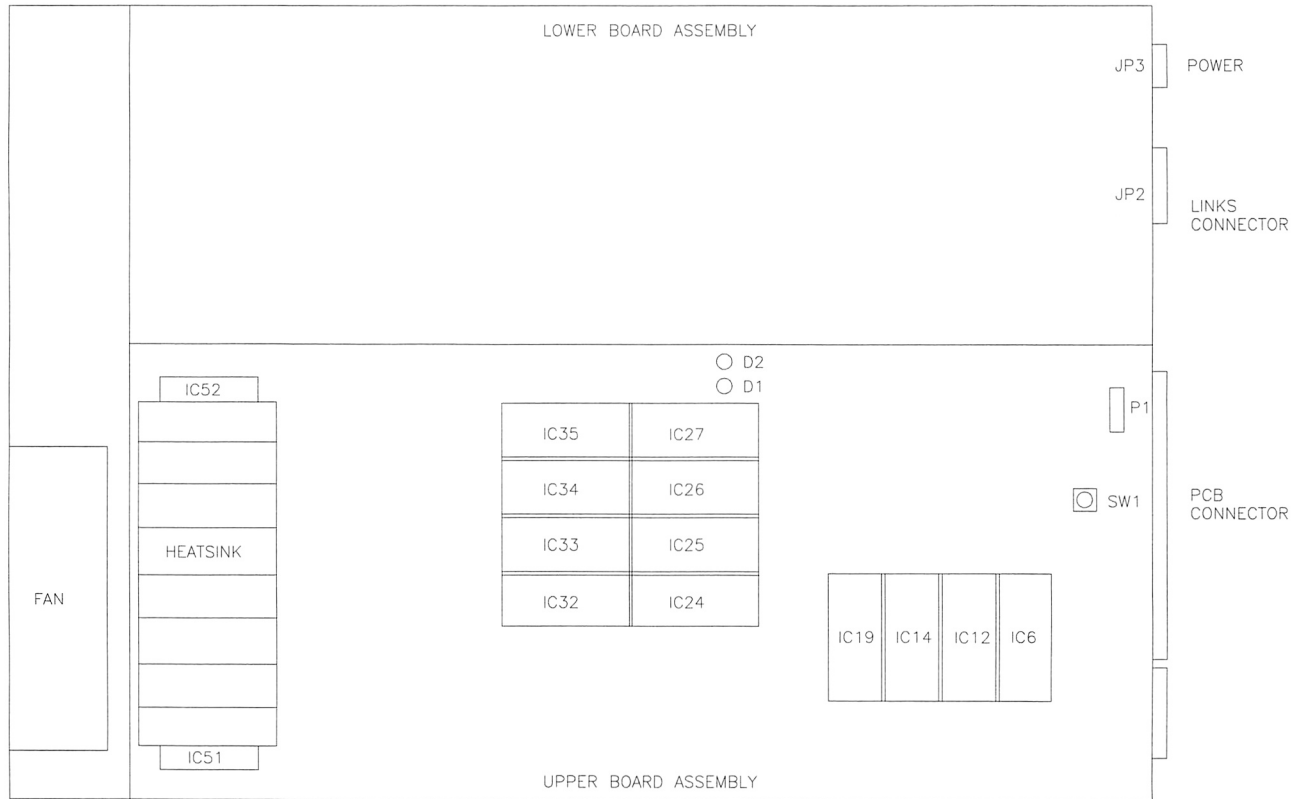
NOTE: THERE ARE 4 ITEMS THAT MUST BE CHANGED FOR OPERATION ON OTHER LINE VOLTAGES:

1. RATING OF POWER SUPPLY FUSE
2. FLUORESCENT LAMP ASSEMBLY
3. VOLTAGE SWITCH ON POWER SUPPLY
4. A.C. POWER TRANSFORMER

FUSE APPLICATION CHART	
LINE VOLTAGE	FUSE RATING
120	4A SB 250V
230	2A SB 250V

CABINET AC WIRING DIAGRAM

CPU BOARD ASSEMBLY



CPU BOARD LED INDICATOR STATUS CHART – STAND ALONE OPERATION

DESIGNATION	FUNCTION	STATE	MEANING
D1 & D2	POWER INDICATOR	ON	IC33 FAULT
D2		ON	DSP IC94 FAULT
D1 & D2		OFF	NORMAL

CPU BOARD LED INDICATOR STATUS CHART – LINKED OPERATION

DESIGNATION	FUNCTION	STATE	MEANING
D1 & D2	POWER INDICATOR	ON	WAITING FOR SYNC SIGNAL
D1		ON	SENDING DATA
D2		ON	RECEIVING DATA

RADIKAL BIKERS™

SECTION FOUR

TROUBLESHOOTING

This game uses complex electronic components that are very **SENSITIVE** to static electricity. The following precautions must be observed and followed prior to handling game electronics.

1. Ensure that the A.C. power to the game is turned **OFF** prior to servicing the electronics.
2. Discharge any static electricity build up in your body by touching the safety ground stud of the power supply chassis while the line cord is connected to a properly grounded outlet. This is to be done **BEFORE** touching or handling the electronic assemblies.
3. Store the electronic assemblies in an anti-static area. Anti-static bags are to be used to store or transport the game CPU Board Assembly.
4. **DO NOT** remove or connect any electronic assemblies when the cabinet power is **ON**. Doing so will damage the electronic assemblies and void the warranty.
5. Always replace ground wires, shields, safety covers, etc. when maintenance or service is completed. Ensure that all ground and mounting screws are installed and tightened firmly.

GAME DOES NOT START

1. Game appears completely non-functional; no audio, no illumination, no video display.

- A: Check that the Power Switch has been turned ON (on power supply at rear of the main cabinet).
- B: Turn OFF the game power. Unplug the A.C. line cord. Examine the Power Supply fuse or circuit breaker. The Power Supply Line Voltage Switch must be set to agree with the local line voltage.
- C: Remove the Line Cord. Test the line cord, power plug and I.E.C. connectors for breaks or damage. Verify the continuity of each wire in the cord. Install the cord at the Power Supply and press firmly to fully seat the connector into the supply receptacle.
- D: Unlock and open the cabinet door or panel as required to expose the game electronics. Ensure that cabinet wiring harness connectors are fully seated in the corresponding power supply and board connectors (refer to Wiring Diagram, Section Three). Inspect wiring for breaks or damage.
- E: Examine the A.C. fuses on the A.C. chassis or the power supply, and the D.C. fuses on the chassis or the electronic equipment shelf. If any fuse is faulty, replace it with an identical fuse.
- F: Fully seat the A.C. plug in the power outlet. Verify that A.C. line voltage is present. Turn the game power ON. Check the D.C. wiring harness and connectors if fuse opens the circuit again.

2: Video game appears non-functional, but currency acceptor price indicator is illuminated.

- A: Unlock and open the cabinet door and the game electronics assembly cover. Inspect the electronics under low light level conditions. A glow will be seen from the Light Emitting Diodes (LEDs) if there is voltage in the processor circuits. This does not mean that voltages or signals are as they should be, but it does indicate that the CPU Board is receiving some D.C. power from the power supply. The power supply fan should also be operating.
- B: Turn OFF the game power. Ensure that the JAMMA Wire Harness connector is attached and fully seated onto the CPU Board connector. Check the edge connector of the PCB and other wiring harness connectors in the same way.
- C: Turn OFF the power to the game. Open the CPU Assembly cover. Check that the game EPROMs and daughter board connectors are properly seated.

CAUTION: DO NOT REMOVE OR INSTALL ANY CONNECTOR WHEN POWER IS TURNED ON. DOING SO WILL DAMAGE THE CPU BOARD ASSEMBLY AND VOID THE WARRANTY.

- D: Turn ON the game power. Using the 20 Volt D.C. setting on a digital voltmeter, measure D.C. voltages present at the Power connector pins. Adjust the +5V source if it is necessary. Refer to the Cabinet Wiring Diagram (Section Three) for specific wiring information and voltage limits.
- E: Using the 2 Volt A.C. setting on a digital voltmeter, measure the same D.C. voltages as above. Any reading here indicates that the supply voltages are unstable and may contain ripple or noise.
- F: Verify that the game runs and completes the power-up self-test sequence without any errors. Note errors and/or failures found during these tests. Compare the CPU Board Assembly Light Emitting Diodes with the LED Indicator Status Chart (Section Three) and note any discrepancies.
- G: Enter the game menu system by pressing and holding the TEST MODE switch. The RAM test of the SCREEN ADJUSTMENT display should read "OK." If the test yields any other result, there is a problem with the PCB or its components. Contact your distributor for assistance with faults.

GAME CANNOT BE PLAYED

1. Game will not accept currency or tokens and cannot be started. Audio and video are present.

- A: Unlock and open the cash door. Empty the cash box. Inspect the revenue for any counterfeit currency. Check the vault and remove any items that block the path from the mechanism.
- B: Unlock and open the coin door. Check each mechanism by hand to ensure proper mounting. Remove the mechanism and clear the currency path. Reinstall the mechanism and latch it.
- C: Verify that the mechanism is level when the doors are closed. Repair or replace the coin door if it is bent or damaged. Adjust the cabinet leg levelers if necessary to keep mechanisms vertical.
- D: Enter the game menu system by pressing and holding the TEST MODE switch. Scroll through the test screens by pressing the VIEW button to the GAME ASSIGNMENTS screen (refer to Section One for additional details). Use this screen to confirm the pricing and setup of the mechanism used in the game.
- E: Verify that each coin mechanism is operating properly by placing it in a known good unit.

2. Game accepts currency or tokens, but does not start. Audio and video are present.

- A: Unlock and open the coin door. Check each mechanism by hand to ensure proper mounting. Verify that each of the release latches is in the closed and locked position. Test known good and bad coins to see if the mechanism accepts and rejects the currency correctly.
- B: Ensure that no loose parts or wires are caught in the hinges, latches, or switch contacts.
- C: Inspect to see if the external coin door indicators (pricing, flashing arrows, etc.) are illuminated. Check connectors and cables for wiring continuity from Filter Board to the coin mechanisms.
- D: Enter the game menu system by pressing and holding the TEST MODE switch. Scroll through the test screens by pressing the VIEW button to the GAME ASSIGNMENTS screen (refer to Section One for additional details). Use this option to confirm the pricing and setup of the mechanism used in the game.
- E: Check for continuity in each of the suspect switch connections (Common to Normally Open or Common to Normally Closed). Replace faulty switches (bent levers, broken actuators, etc.).
- F: Verify that each coin mechanism is operating properly by placing it in a known good unit.

CONTROL PROBLEMS

1. Player controls are intermittent or completely non-functional. Game starts normally.

- A: Unlock and open the coin door. Enter the game menu system by pressing and holding the TEST MODE switch inside the coin door. Press the VIEW button to scroll through the menu screens to the INPUT TEST (refer to Section One for additional details). OK should appear on the screen only when a switch is activated. Use these tests to confirm the operation of each switch used in the game.
- B: Use the VIEW button to scroll through the menu screens to the HANDLE ADJUST test. Press START, then move the handlebar to its extreme left and right positions. The NORM value should be 20 or greater in the far left position and 235 or less in the far right position. The position indicator will change as the handlebar is moved.
- C: Move the handlebar to its exact center position. The NORM value should be 100-150.
- D: Turn OFF the game power. Open the control panel. Grip the handlebar and carefully tilt the panel back on its hinge. Ensure that no loose parts or wires are caught in hinges, latches, or switches.
- E: Check that the cabinet wiring is correct for this game. Ensure that the controls are properly connected to the control input wires from the joystick wiring harness and the JAMMA connector. *This game uses a non-standard JAMMA connector.* Refer to the Cabinet Wiring Diagram (Section Three) for specific wiring information.
- F: Verify continuity in each of the switch connections (Common to Normally Open or Common to Normally Closed). Ensure that the control is operating properly by placing in a known good unit.

2. Handlebar calibration is not correct (refer to steps A-D above). Game starts normally.

- A: Unlock and open the coin door. Enter the game menu system by pressing and holding the TEST MODE switch inside the coin door. Press the VIEW button to scroll through the menu screens to the INPUT TEST (refer to Section One for additional details). OK should appear on the screen only when a switch is activated. Use these tests to confirm the operation of each switch used in the game.
- B: Use the VIEW button to scroll through the menu screens to the HANDLE ADJUST test. Press START, then move the handlebar to its extreme left and right positions. The NORM value should be 20 or greater in the far left position and 235 or less in the far right position. The position indicator will change as the handlebar is moved.
- C: Move the handlebar to its exact center position. The NORM value should be 100-150.
- D: Turn OFF the game power, wait ten seconds, and turn it ON again. Press and hold TEST MODE, then scroll to the HANDLE ADJUST test as before. The NORM value should still be between 100-150.
- E: Repeat steps C and D until the NORM value remains between 100 and 150 each time power is cycled OFF and ON.
- F: Unlock and open the coin door. Enter the game menu system by pressing and holding the TEST MODE switch inside the coin door. Press the VIEW button to scroll through the menu screens to the INPUT TEST (refer to Section One for additional details). OK should appear on the screen only when a switch is activated. Use these tests to confirm the operation of each switch used in the game.

LINKING PROBLEMS

1. Cannot connect games together. There are no linking cables.

A: A linking cable is included to set up interconnection. Each cable connects two games (one pair). Contact your local distributor to obtain the special linking cable for this game if it is lost or missing.

B: This linking system uses high grade computer type cable for the game data exchanges. Do not substitute other cables or communication wiring without factory authorization.

2. Game functions correctly by itself, but does not recognize other players in linking operation.

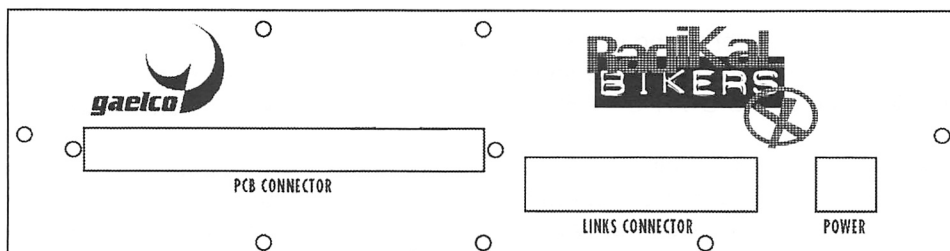
A: Note and record any error messages that occur during self-test. Open the coin door. Press and hold the TEST MODE switch to enter the menu system. Press the VIEW button to advance to the GAME ASSIGNMENTS screen. Check that the LINK TYPE setting is different for each cabinet. One cabinet should be set to MASTER, the other to SLAVE. Make sure to save any changes before exiting the menu system.

B: Unlock and open the rear door. Verify that the linking cable is connected to the CPU/PCB Board. Only use the connector on the right side near the POWER connector on the game electronics assembly end panel.

C: All linked cabinets require the same software version. Unlock the coin door and press the TEST MODE button on both cabinets. Check that the VERSION displayed on the first menu screen is the same for each cabinet. Different versions may not be compatible. It does not matter which revision level is installed, only that linked game pairs are the same.

D: Turn Off power on cabinets, wait two minutes, and turn both units on (this clears some errors).

E: Verify that each linking cable is operating properly by placing it in a known good unit.



LOCATION OF CONNECTOR FOR LINKING CABLE

3. Link cannot be established between two games. Linking cable is connected.

A: Note and record any error messages that occur during self-test. Open the coin door. Press and hold the TEST MODE switch to enter the menu system. Press the VIEW button to advance to the GAME ASSIGNMENTS screen. Check that the LINK TYPE setting is different for each cabinet. One cabinet should be set to MASTER, the other to SLAVE. Make sure to save any changes before exiting the menu system.

B: Open the cabinet rear door. Open the CPU assembly cover and observe the activity of the LEDs near IC27. Compare this activity to the chart in Section Three, Wiring to find any errors with CPU or linking cable.

AUDIO PROBLEMS

1: Audio is not heard, but video is present and game appears normal (also see Linking Problems).

- A: Enter the game menu system by pressing and holding the TEST MODE switch. Press the VIEW button to advance to the OUTPUT TEST menu screen (refer to Section One for additional details). Use the brake handle to highlight any of the SOUND CHANNEL menu selections. Press the VOLUME UP button on the coin door until there is sufficient channel volume to verify operation. Repeat this for each channel. Change the levels if necessary to make the game audible.
- B: Turn OFF the game power. Remove grilles and inspect speakers. Ensure that no loose parts or wires are caught in speaker cones, terminals, mounting screws, or stuck to the magnets.
- C: Turn ON the game power. Using the 20 Volt D.C. setting on a digital voltmeter, measure D.C. voltages present at the Power connector pins. Verify the +5V, -5V and +12V sources. Refer to the Cabinet Wiring Diagram (Section Three) for specific wiring information and voltage limits.
- D: Using the 2 Volt A.C. setting on a digital voltmeter, measure the same D.C. voltages as above. Any reading here indicates that the supply voltages are unstable and may contain ripple or noise.
- E: Verify proper operation of game CPU Board Assembly by placing it in a known good game.

2: The audio is distorted, muffled or missing frequencies. A constant low hum may be present.

- A: Enter the game menu system by pressing and holding the TEST MODE switch. Use the VIEW button to scroll through the menu screens to the OUTPUT TEST menu. These tests will verify the speaker connections.
- B: Turn OFF the game power. Remove the grilles and check the speakers. Ensure that each small speaker is FULL RANGE (100 to 10,000 Hz response) and rated for at least 10 WATTS. The larger speaker must rate at least 25 WATTS.
- C: Check that the speaker wiring is not reversed at one of the speakers. Weak low frequencies and a thin or hollow sound quality are symptoms of incorrectly phased speakers. This condition will not be detected by the OUTPUT TEST, but it will be audible during normal game operation.
- D: Check that the cabinet wiring is correct for this game. Verify that the cabinet wiring provides separate wires (not a common return) for each speaker. Ensure that all cabinet ground wires are connected. Refer to the Cabinet Wiring Diagram (Section Three) for specific wiring information.
- E: Using the 2 Volt A.C. setting on a digital voltmeter, measure voltages at the speaker terminals. Any reading here indicates that the supply voltages are unstable and may contain ripple or noise.
- F: Verify that each speaker is operating properly by placing it in a known good unit.

3: The audio is monaural (it should be stereo).

- A: Verify that cabinet wiring for this game is correct. Ensure that speakers are connected to the JAMMA audio output wires properly.
- B: Check for shorted or broken wires. Refer to the Cabinet Wiring Diagram (Section Three) for specific wiring information.

VIDEO PROBLEMS

1. Monitor appears non-functional, but audio is present and controls operate as expected.

- A: Open the cabinet to expose the Video Monitor. Verify that A.C. Power is connected to the Video Monitor. Inspect the neck of the CRT under low light level conditions. A glow will be seen near the CRT base if there is voltage in the filament circuits. This does not mean that other voltages or signals are as they should be, but it does indicate that monitor circuits are receiving some power.
- B: Turn OFF the game power. Verify that the Video Signal and the Remote Adjustment Board connectors are fully seated on the Video Monitor Board Assembly. Check the other monitor connectors in the same way. **Do not operate a monitor without a Remote Adjustment Board.**
- C: Examine the A.C. line fuse on the Video Monitor Board Assembly. If the fuse is faulty, replace it with an identical fuse of the proper voltage and current rating.
- D: Ensure that no loose parts or wires are caught on the chassis or the mounting brackets.
- E: Check that the brightness (intensity) and contrast have not been set to their minimum levels.
- F: Verify that the Video Monitor is operating correctly by placing it in a known good unit.

2: The power-up self-test will run, but the game does not appear. No audio is present.

- A: Note and record any error messages that occur during self-test. Enter the game menu system by pressing and holding the TEST MODE switch. On the first menu screen, check the RAM test result. This test checks some of the CPU functions in this game. Note any errors in the RAM reports (it must report OK for proper game operation).
- B: Turn OFF the game power. Unlock and open the front door. Inspect the game electronics. Ensure that the JAMMA connector is fully seated into the mating connector of the CPU/PCB Board Assembly.

CAUTION: DO NOT REMOVE OR INSTALL ANY CONNECTOR WHEN POWER IS TURNED ON. THIS WILL DAMAGE THE CPU BOARD AND VOID THE WARRANTY.

- C: Verify that the ROM instruction set is correct for this game. There is more than one ROM in a game set. Each ROM circuit is labeled with the assembly number and the software version.
- D: Verify that the CPU Board Assembly is correct for this game. Each CPU Board is marked with the manufacturer name, assembly number and the hardware version.
- E: Turn ON the game power. Using the 20 Volt D.C. setting on a digital voltmeter, measure D.C. voltages present at the Power connector pins. Verify the +5V source if it is adjustable. Refer to the Cabinet Wiring Diagram (Section Three) for specific wiring information and voltage limits.
- F: Using the 2 Volt A.C. setting on a digital voltmeter, measure the same D.C. voltages as above. Any reading indicates that the supply voltages are unstable and may contain ripple or noise.
- G: Compare CPU Board Light Emitting Diode states with the CPU Indicator Chart (Section Three).

3. Monitor will not lock onto the signal and provide a stable picture, colors are missing, etc.

- A: Check connectors and cables for wiring continuity from the CPU Board to the Video Monitor. Verify all jumpers are set correctly for this monitor. Refer to Board Configuration (Section Three).
- B: Ensure that the Video Monitor Assembly is correct for this game. Use of video monitors with different resolution will result in what appears to be horizontal tearing or complete loss of sync.
- C: Verify that the Video Monitor is operating correctly by placing it in a known good unit. Interlaced video signals may cause jitter or vibration with some displays; try another brand of Video Monitor.

4: Game operates normally, but video picture wavers or rolls, has dark bars, uneven colors, etc.

- A: Check connectors and cables for wiring continuity from the CPU Board to the Video Monitor.
- B: Ensure that all the cabinet ground wires are connected, especially at the Video Monitor Chassis.
- C: Move the cabinet farther away from machines, appliances, other games, etc. Very strong electrical or magnetic fields are present near some equipment when it is operating normally.
- D: Verify that the Video Monitor is operating correctly by placing it in a known good unit (interlaced video signals may cause jitter or vibration with some displays).

MISCELLANEOUS

1: Marquee lamp is intermittent or non-functional. Game starts and plays normally.

- A: Open the cabinet marquee or attraction panel. Remove the lamp end locks and the fluorescent tube from the holders. Install a new lamp if cracks or darkened ends are found. Clean the tube.
- B: Verify that the lamp and starter pins are making good connection with their socket contacts.
- C: Measure the A.C. voltages to the Fluorescent Lamp Assembly (Power Wiring Diagram, Section Three). Check wiring and connector continuity from the A.C. Power Chassis to the Lamp.
- D: Ensure that the Fluorescent Lamp Ballast is rated for the local A.C. line voltage and frequency.
- E: Verify that the lamp, starter, and ballast operate by placing one at a time in a known good unit.

2. Game operates intermittently.

- A: Check bottom and rear of cabinet for blocked air flow. Move game away from sources of heat.
- B: Turn OFF the game power. Apply high power vacuum cleaner to vent holes to remove dust.
- C: Open the cabinet to expose the electronics. Ensure that the fan is connected to wiring harness.

3. Error Messages appear on the screen. The game does not start and there is no audio.

- A: Check any assembly identified in the Error Message.
- B: Call your authorized distributor for help with unresolved screen messages.

WARNINGS & NOTICES

WARNING

USE OF NON-ATARI PARTS OR CIRCUIT MODIFICATIONS MAY CAUSE SERIOUS INJURY OR EQUIPMENT DAMAGE! USE ONLY ATARI AUTHORIZED PARTS.

* Substitute parts or modifications may void EMC directive or FCC type acceptance.

* For safety and reliability, substitute parts and modifications are not recommended. Use only ATARI authorized components and parts. Failure to do so will void warranty and may result in incorrect and/or unsafe operation.

* This game is protected by federal copyright, trademark and patent laws. Unauthorized modifications may be illegal under federal law. This also applies to ATARI logos, designs, publications and assemblies. Moreover, facsimiles of ATARI equipment (or any feature thereof) may be illegal under federal law, regardless of whether or not such facsimiles are manufactured with ATARI components.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generated, uses and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

When ATARI ships a game, it is in compliance with FCC regulations. Your label is proof. If the label is missing or damaged, legal repercussions to the owner or distributor of the game may result. If your game does not contain an FCC label, call ATARI immediately.

WARNING

Plug this game into a properly grounded outlet to prevent shock hazards and assure proper game operation. Do not use a cheater plug to defeat the power cord's grounding pin. Do not cut off the ground pin.

WARNING

A very small portion of the population has a condition which may cause them to experience epileptic seizures or have momentary loss of consciousness when viewing certain kinds of flashing lights or patterns that are present in our daily environment. These persons may experience seizures while watching some kinds of television pictures or playing certain video games. People who have not had any previous seizures may nonetheless have an undetected epileptic condition.

If you or anyone in your family has experienced symptoms linked to an epileptic condition (e.g. seizures or loss of awareness), immediately consult your physician before using any video games.

We recommend that parents observe their children while they play video games. If you or your child experience the following symptoms: dizziness, altered vision, eye or muscle twitching, involuntary movements, loss of awareness, disorientation, or convulsions, DISCONTINUE USE IMMEDIATELY and consult your physician.

NOTICE

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